DEVELOPING A MEASURE OF GLOBAL MOBILITY

A Dissertation

by

SARAH SPINELLA FORCEY

Submitted to the Office of Graduate and Professional Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Chair of Committee,	Dan Brossart
Committee Members,	Jessica Yue
	Jeffrey Liew
	Hiroshi Ono
Head of Department,	Victor Willson

August 2016

Major Subject: Counseling Psychology

ABSTRACT

Ever-increasing numbers of individuals are traveling globally and little is understood about how living a global lifestyle affects individuals. Most research about the effects of a global lifestyle addresses the experiences of expatriates and third culture kids (TCKs—children of expatriates). However, the experiences of expatriates and TCKs vary widely, and the research lacks a clear way of differentiating and quantifying these global experiences. Additionally, others who have moved domestically or regionally may be affected in similar ways. The present study develops a measure of global mobility that can be used as a standard in quantifying the experiences of those who travel and live in diverse places. The need for a measure of global mobility was developed from the TCK literature. Dimensions of global mobility—Familiarity (with sub-dimensions of International Familiarity, Domestic Familiarity, and Regional Familiarity), Connection, and Separation were defined. Item content was generated and item format was determined. Experts reviewed the items. Validity items were chosen. The items were pilot-tested, analyzed via principal components analysis and Rasch analysis and revised accordingly. Two-hundred-and-twenty-nine items were tested in a sample of over 620 people and again analyzed with principal components analysis and Rasch analysis. Finally, the best items were chosen to create a five scale, 31-item Measure of Global Mobility.

Through principle components a five component structure for the items was revealed, resulting in five scales of global mobility: International Familiarity, Domestic

Familiarity, Regional Familiarity, Connection, and Separation. Additionally, through Rasch analysis strong evidence was found to support the structural validity, content validity, substantive validity, and external validity of the measure. The Measure of Global Mobility can now be used as a research tool, but must be scored using Rasch analysis or estimates based on the current conversion rubric until the stability of item measure scores can be established in another sample.

DEDICATION

This work is dedicated to my parents, who have blessed me tremendously. They gave me my own global experiences, parented me well, leading to loving trusting relationship with each other and lifelong friendship, and they instilled in me a deep love for God.

ACKNOWLEDGEMENTS

This project would never have been completed without the help and support of many people. I'm thankful to my advisor, Dan Brossart, for allowing me to take on a project of my own interest and choosing, for consulting with me when needed, and for believing in my work and sharing in my excitement. I'm thankful and indebted to Jessica Yue, who taught me Rasch analysis, consulted with me many times, allowed me to audit her class on instrument development, pointed me to helpful resources, and answered numerous questions about statistics. I'm thankful to Hiroshi Ono for remaining on my committee despite moving to Japan, and to Jeffrey Liew who also remained on my committee following his sabbatical. Thank you all for your feedback in shaping this project and for supporting me and my work in an area that was largely unknown to you previously.

In working on this project over the course of three years, I wavered between hopeful belief in my project, and despairing doubt about the usefulness of my contribution. My husband John was chiefly important in walking me through these times of doubt, and he never wavered in his belief in the usefulness of my project. Likewise, my parents encouraged me and believed my work was important.

I'm thankful for those who attended my "item-writing party"—Daniella, Kelsey, Avery, Bruce, and John. You had no idea what you were getting yourselves into when you agreed to come, and yet you graciously gave an hour of your time to quietly brainstorm ways to ask about global mobility. I'm also thankful to many who had

conversations with me in the early stages of this project, helping me sharpen and develop my ideas about global mobility.

Thank you to my experts: Neeta Ramkumar, Les Hirst, Vance Shepperson, Beth Wyse, Valerie Williams, Beth Barron, Steve Spinella, and Laura Spinella. Thank you for taking the time to read through my items and give me your honest feedback. I'm also thankful to Lauren Owen, for writing an article about me and my research to help recruit participants.

Finally, thank you to all who took and shared my survey with others! I am so grateful and appreciative of the time and energy you gave to me to help me complete this project and my degree. Without you, this research could not have been completed. Some of you spent more than an hour completing my survey—thank you for your perseverance! Some of you not only completed this survey yourselves but recruited your whole family to complete my survey, before even my own family completed it. Some of you sent individual messages to large numbers of your friends and contacts about my research. Thank you!

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INTRODUCTION: DEVELOPING A MEASURE OF GLOBAL MOBILITY

There are ever-increasing numbers of globally mobile individuals. With the advent of commercial airlines, frequent and efficient travel allows individuals and families to traverse the globe many times in the course of a lifetime, turning the once rare experience of living in multiple countries into a widespread phenomenon. Additionally, there are a growing number of people who move, even frequently, but only within one country. Those making domestic moves likely experience some of the same challenges and benefits as those who make international moves. Even within one country there are opportunities to experience different cultures. The number of those moving while staying within the same region of a country is increasing as more and more individuals move from rural to urban areas. United Nations predicts that by 2050, 2.5 billion people will be added to urban areas and 300 million will leave rural areas (Wendell, 2012). The modern world is full of people with experiences of living different places.

Global mobility, as defined in this study, is an individual's experience of travelling across boundaries and living in diverse places. Broadly conceived, the idea of global mobility has a history as old as the first humans who traveled from their birthplace to settle somewhere else. However, only recently has the idea of global mobility become of interest to researchers. Thus far only a handful of researchers, not in the discipline of psychology, have used the term global mobility in a manner similar to the present study, and most research related to global mobility (though not referred to as

such) is in the area of Third Culture Kids (TCKs). For this reason the current research primarily relies on psychological research about TCKs as a foundation, but it is sometimes necessary to draw from other research areas (such as nursing and migration) and even other disciplines (such as sociology) because of the paucity of research directly related to the idea of global mobility.

Robert Park wrote an article (1928) about the "marginal man" describing the importance of studying those who cross cultures. He makes a case that those who cross cultures "[strive] to live in two diverse cultural groups" (p. 881). He says that it changes their personality, leading to characteristic forms of behavior, and that the mind of the marginal man is where the process of civilization can best be studied. Park says the marginal man is "not bound as others are by the local proprieties and conventions," and, quoting Teggart (1925), "He is the freer man, practically and theoretically. He views his relation to others with less prejudice; he submits them to more general, more objective standards, and he is not confined in his action by custom, piety or precedents" (p. 888). In addition to those who migrate in more traditional ways, expatriates and TCKs comprise a large portion of those who cross cultures.

Since the mid 1900s there has been research focused on expatriate living (Cockburn, 2002; Useem, 1993). This research has addressed the four most common types of expatriates: military, business, missionary, and diplomat (Bonebright, 2010; Hervey, 2009). The main thrust of the research has been seeking to understand what changes occur in the lives of those who leave their home country to dwell in another country, uprooting their families to take up residence in another country. The research is focused on enhancing outcomes for expatriates.

Shortly following the interest in expatriates, researchers also became interested in understanding the impact of international travel on children (TCKs). By the turn of the century, Dave Pollock and Ruth Van Reken published a seminal book on TCKs, *Third Culture Kids: The Experience of Growing Up Among Worlds* (2001). Pollock and Van Reken's book offers descriptions of numerous outcomes a TCK might experience as a result of living a global life, but contemporary research on TCKs has limited ability to predict when specific outcomes are likely to occur. Perhaps this is because most of the current research is qualitative, and the existing quantitative research makes few distinctions about the nature of a TCK's global experiences. Yet the experiences of TCKs vary broadly in numerous ways, such as the length of time spent internationally, the number of host cultures, the number of languages learned, the extent of interactions with local people in the host country, etcetera. Additionally, Pollock and Van Reken made some observations related to transitions that seemed potentially applicable to those who moved many places within one country, or those who moved many places as adults but not as children (both of these populations were excluded from their definition of TCKs).

The current research provides a foundation for understanding the experiences of TCKs and expatriates, but by nature it is narrow. Each study looks at only a segment of the globally mobile population, children, adults, business expatriates, military personnel, or spouses. By selecting a segment of the population, it also misses others who share in some of the same challenges and benefits, such as those geographically mobile within one country. It is like a fisherman catching one fish at a time with a single fishing rod.

Even within a narrowed population, such as missionary kids, there are so many variations in their experiences that it is difficult to predict what outcomes will occur when. Each study relies on varying inclusion criteria (usually revolving around the definition of a TCK) to select a sample. There are also varying independent variables used to quantify TCK experiences, such as the number of international moves, the total length of time spent internationally, or the number of languages spoken. But these independent variables are unstandardized, making it difficult to predict when any given dependent variable related to being a TCK will occur. Put simply, the research has limited generalizability.

In the face of accelerating globalization, there is a need to know more about the effects of global mobility on individuals. Because globally mobile experiences vary widely between individuals, it is impossible to fully learn the effects of global mobility without a way of measuring global mobility. The technique of choosing one narrow segment of the population to study at a time is insufficient. How can the effects of globalization in the life of the individual be understood without a way of measuring global mobility?

This study proposes a quantitative way of measuring global mobility. Global mobility is an individual's experience of travelling across boundaries and living in diverse places. In the process of living in diverse places, to varying extents, individuals acquire familiarity with that place, experience connection with that place, and, if they move away, experience separation from that place. Someone who experiences more of each of these is more globally mobile than someone who experiences less of each of

these. These three dimensions of global mobility—Familiarity, Connection, and Separation—are defined and quantified in this study. Familiarity is explored with three different scopes: International Familiarity, Domestic Familiarity (within one country), and Regional Familiarity (within one region). By defining and measuring global mobility, researchers will be able to discover the effects of global mobility in terms of a person's familiarity, connection, and separation with the various places they have experienced. Global mobility affects numerous people in the modern world, and this measure includes not only those who make international moves, but also those who make domestic or regional moves. In the present study, items to measure global mobility have been developed and analyzed, resulting in a five scale, 31-item Measure of Global Mobility.

LITERATURE REVIEW

Research on Third Culture Kids

Research on TCKs serves as the foundation for developing a measure of global mobility. To understand the term 'third culture kid,' one must recognize that the 'first culture' is considered the parents' home culture, the 'second culture' is the host culture (of destination countries), and the 'third culture' refers to the unique mix of cultures lived in by the TCK (Useem, 1993; Pollock & Van Reken, 2001). Although the literature about TCKs does not use the term 'global mobility,' the literature illuminates the need for a measure of global mobility through its inclusion criteria, independent variables, and dependent variables.

First, the samples used for studies on TCKs are limited by inclusion criteria that are all based on the same definition of a TCK but use different cutoffs to determine just who is included and who is not. Not only is there no standard, but studies are often limited only to TCKs when others may also benefit from inclusion in the study. Second, there is variation in the independent variables used in studies on TCKs. Many researchers think that the experience of being a TCK is the necessary independent variable, but struggle with how to quantify that experience. Most include the number of countries lived in and the number of years abroad as independent variables, but may also include other variables. Again, there is no standardization about how to quantify global experience. Third, there are numerous dependent variables studied because of the many ideas associated with living as a TCK, and yet there is little quantitative research to show

that these dependent variables are linked to life as a TCK. In particular, there is no research supporting the assumed relationship between global mobility and these varied dependent variables—there is no evidence showing how much or what kind of global experience is required in order for these dependent variables to be empirically supported. Altogether, these aspects of the literature leave the field in a confused and disorganized state. A measure of global mobility addresses these issues by providing a standardized way of measuring global experiences that will allow for the inclusion of more than just TCKs and allow for the relationship between global mobility and various dependent variables to be consistently studied.

Inclusion Criteria

The criteria for inclusion in studies on TCKs show variation, leaving out some TCKs but including others. Many of the studies on TCKs determine their population of inclusion based on Pollock and Van Reken's seminal definition of a TCK:

> "a person who has spent a significant part of his or her developmental years outside the parents' culture. The TCK builds relationships to all the cultures, while not having full ownership in any. Although elements from each culture are assimilated into the TCK's life experience, the sense of belonging is in relationship to others of similar background" (2001, p. 19).

Many authors quote Pollock and Van Reken's definition exactly as it is quoted above, including all three sentences shown (Cockburn, 2002; Hervey, 2009; Melles & Schwartz, 2013). Other authors define their population using only the first sentence (Collier, 2008; Gilbert, 2008; Hoersting & Jenkins, 2011; Schaetti, n.d.). Despite a

common definition across studies, this definition is manifested as a variety of inclusion criteria.

One of the main ways inclusion criteria vary is the number of years needed in a host country and the age before which those years must occur. Lyttle, Barker, and Cornwell (2011) have perhaps the most detailed specifications: three years during ages six to twelve, or one year during ages twelve to eighteen, or half of each if the time spans both age ranges. Collier (2008) also specifies three years, and participants must be at least age 18, while Hoersting and Jenkins (2011) require more than two years on one or more occasions before age 18. Gilbert (2008) requires one continuous year as a minor dependent. Melles and Schwartz (2013) require six months between ages one and eighteen. Hervey (2009) and Peterson and Plamondon (2011) do not specify a length of time at all, merely requiring that participants have lived in another country before age 18 to 25 (Peterson & Plamondon, 2009) or the college-age years (Hervey, 2009). Most studies on TCKs require some length of time spent in another country before a specific age, but there is disagreement as to length of time, age, and continuity.

Other variations in inclusion criteria have to do with definitions of the host country, repatriations, and parent employment. One study defines the place lived abroad as outside the passport country (Gilbert, 2008), and another defines it as not the parents' home culture (Hoersting & Jenkins, 2011), and another includes both definitions (Melles & Schwartz, 2013). Several studies specify that the participant must have already repatriated, either specifically to the U.S. (Peterson & Plamondon, 2009), or for the purpose of attending college (Collier, 2008), or to the parents' home culture (Hoersting

& Jenkins, 2011). Melles and Schwartz (2013) do not require repatriation to have already occurred, but do require that living in the host country be seen as impermanent, and that participants not consider themselves immigrants. Melles and Schwartz (2013) also require that participants have involvement with an expatriate community during their developmental years. Two other studies include only children of missionaries (Collier, 2008), or children whose parents worked for a non-profit organization (such as a missions organization) (Hervey, 2009). Hervey (2009) also adds a requirement that participants must have moved less than ten times. While these criteria have many similarities, it becomes clear there is no standard criteria for inclusion in a study on TCKs, and the population for each study varies accordingly.

The authors of these studies restrict their samples with these criteria because they want to study TCKs. Therefore, they try to match their criteria for inclusion to the definition of a TCK. However, they all do so slightly differently. This highlights the incongruity of trying to treat individuals with such diverse experiences as a single group. Many individuals are excluded who have similar experiences, and may even be TCKs, but do not match all of the criteria. A measure of global mobility circumvents these problems by measuring on a continuum the underlying dimensions that comprise the core parts of the TCK experience so that all can be included in research efforts.

Independent Variables

While these studies base inclusion criteria on fitting the TCK definition, they use specific aspects of the TCK experience as their independent variables. These independent variables reflect ideas related to global mobility. Many authors design their

own demographic questionnaire about aspects of a TCK's experience and use a score obtained from that questionnaire as their independent variable (Hervey, 2009; Hoersting & Jenkins, 2011; Lyttle, Barker & Cornwell, 2011; Melles & Schwartz, 2013; Peterson & Plamondon, 2009). This questionnaire often includes questions about the number of years spent abroad, and the number of host cultures or countries of residence (Hoersting & Jenkins, 2011; Lyttle, Barker & Cornwell, 2011; Melles & Schwartz, 2013; Peterson & Plamondon, 2009). Some studies ask about language proficiency (Hoersting & Jenkins, 2011; Lyttle et al., 2011). Hoersting and Jenkins (2011) also ask about the age of first move, number of citizenships, reason for cross-cultural relocation, and ratings of the cross-cultural experience of participants' three closest relationships. Peterson and Plamondon (2009) ask about the regions inhabited, and number of repatriations. Lyttle et al. (2011) ask about attitudes toward intercultural adaptation, and Melles and Schwartz (2013) record participants' nationalities. These researchers know that the TCK experience is so varied and complex that more information about an individual TCK's experience is needed to draw meaningful conclusions. They attempt to quantify and delineate differences in TCK experiences, but again, there is no standard or agreement about which are the most important underlying aspects of the TCK experience. Designing a measure of global mobility is an intentional and comprehensive approach to identifying and quantifying the most important underlying differences in global experiences.

That researchers are designing their own mini questionnaires related to global mobility suggests the need for a standard way to measure global mobility. As put by Peterson and Plamondon (2009):

> TCKs do not always share a first culture geographic location, they have diverse experiences abroad (e.g., parents may work for very different kinds of sponsoring organizations), they may be sent to any region of the world for any number of years, and they may attend very different types of schools. In future work all of these factors and more should be examined to understand better the TCK experience. (p.760)

There are many factors that vary in the TCK experience, and yet most studies do not account for these differences. Researchers distinguish TCK experiences in terms of a few factors pieced together for each study, such as the number of host cultures or language proficiency. These researchers know that distinction is necessary but have no standard set of distinctions to use. A measure of global mobility attempts to provide such a standard.

Dependent Variables

Another sign of need for a measure of global mobility is evident in the numerous descriptions of characteristics that TCKs develop that have limited predictability. Pollock and Van Reken (2001) identify and describe a number of sometimes conflicting TCK outcomes, focusing on the double-sided nature of a global life and the potential for both benefits and challenges. They say that living as a TCK may bring the benefits of expanded worldview, grounded view of world events, possession of cultural knowledge,

adaptability, less prejudice, and valuing the present moment. Conversely, living as a TCK brings potential challenges including confused loyalties, a painful view of world events, ignorance of the home culture, confusion about personal values and identity, increased prejudice, and feeling constrained by the choices of others. Pollock and Van Reken highlight that TCKs often acquire observational, linguistic, and social skills, though sometimes their social experiences lead to hesitance to avoid mistakes instead of confidence to take risks. They speak to relational and identity issues for TCKs, such as feeling rootless (confused about where home is) and restless (unable to settle in one place for long). TCKs often acquire a large collection of relationships that cannot all be maintained. They also commonly experience either a longing to enter into deep relationships quickly (so as not to waste time) or a fear of intimacy because of experiencing great loss. Pollock and Van Reken also discuss the commonly comorbid unresolved grief TCKs possess due to fear of denying good things about moving, hidden losses, lack of permission to grieve, lack of time to process, and lack of comfort. The authors move quickly through their material, providing brief anecdotal evidence for each potential result of living a global lifestyle as a TCK.

There are a plethora of potential dependent variables available for study from Pollock and Van Reken's (2001) work alone. Many of the outcomes of living as a TCK have been picked up by researchers seeking to further elucidate the effects of living as a TCK. Grief and loss is a common outcome variable in TCK research. Gilbert (2008) focuses her qualitative study on the disenfranchised grief (grief that is not recognized by other people, or that goes against grieving norms) of TCKs. Another common

dependent variable is that of cultural homelessness, a focus of Hoersting and Jenkins (2011). An adult TCK shared that, "Home is where most of my junk is and where I mainly come back to when I go away on short trips," (S. Owen, personal communication, September 27, 2013), and many TCKs must resort to such definitions of home because they lack an easy answer to the question, "Where is your home?" (Bonebright, 2010). Lack of home is thought to impact identity development (Schaetti, 2000). Barbara Schaetti's (2000) work examines the identity development of TCKs, resulting in national, international, or transnational identities. Authoritarianism and prejudice in TCKs is another growing research area, seeking to determine if TCK experiences lead to more or less authoritarianism or prejudice (Melles & Schwartz, 2013; Peterson & Plamondon, 2009). Additionally, some research is focused on the repatriation experiences of TCKs, and TCKs' expectations, challenges, distress and support in the process (Collier, 2008; Hervey, 2009). There are many dependent variables of interest in TCK research, and researchers are only beginning to explore these variables through qualitative and quantitative research.

A clear need illumined by early research in the area of TCKs is for quantitative, causal research that allows researchers to predict when dependent variables will occur. Vicki Lambiri (2005) interviewed six intercultural experts recognized in the TCK arena, coming up with a list of the top eight research needs. One of the top eight needs stated was using assessments to test the theories that comprise the TCK profile. Specifically, Barbara Schaetti (one of the interviewees) noted that "the more time TCKs spend abroad and the more in-depth exposure to multiple cultural traditions, the more likely they are to

be ethnorelative" (Lambiri, 2005). 'Ethnorelative' refers to the ability to adapt behavior and judgments to many cultural settings, expressing the opposite of 'ethnocentric,' another TCK outcome variable of interest (Bennett, 1986). Essentially, Schaetti is highlighting the insight that whether or not TCKs exhibit certain characteristics depends on the amount of exposure they have to multiple cultures. Therefore, a way of measuring the amount of exposure individuals have to multiple cultures is needed so that TCK outcome variables can be tested, and, more specifically, be understood in terms of the level of experience leading to certain outcomes.

Furthermore, this way of measuring exposure to the experience of living in different places should be broadened to include more than just TCKs. Schaetti (n.d.) states:

> The [TCK] experience has much in common with that of 'home grown' individuals whose international mobility began only in adulthood. It also shares commonalities with those who grew up mobile but within a single national context (domestic nomads), and with those who as children were immigrants or refugees. (para. 4)

Here she is noting that others besides TCKs share elements of the TCK experience. These related populations may share the TCK's relationship to certain dependent variables. However, there is currently no research to discover whether or not this is true, since these populations do not fit the criteria for inclusion in studies on TCKs. Therefore, a need exists for a measure of global mobility that broadens the scope of inclusion when it comes to experiences of living different places.

The literature on TCKs points to the need for a standard way of measuring differences in the breadth and depth of TCKs' experiences of their host cultures (besides number of years and number of countries). Increasingly, individuals are crossing cultures with the rise of globalization, and only a few of them are TCKs. By broadening the scope of a measure for global mobility, other populations can also be included who share in common some elements of the TCK experience, such as frequent uprooting and living in diverse places. The creation of a validated measure for global mobility will provide a standard measure that enables prediction of dependent variables for broad populations, tying outcomes to certain levels of global mobility.

Towards a Measure of Global Mobility

Not many have used the term "global mobility" thus far. Sociologists Tsai and Iwai (2013) write that "global mobility represents a possession of ample opportunities to frequently travel beyond borders" (p. 305). Elsewhere in their article, Tsai and Iwai (2013) use global mobility to refer to experiences of crossing national borders, having "been there" in other countries. Calhoun (2008) writes about the privilege of cosmopolitan experiences from the broader sphere of the social sciences, using the term 'global mobility' in passing to describe the experience of frequently traveling to various countries. Favell, Feldenblum, and Smith (2007), also writing from a broad focus on social sciences, identify a research agenda for global mobility, calling for an exploration of the human face of global mobility that would examine features of the individual's experience instead of macro-generalizations of globalization. These authors from the

social sciences use the term 'global mobility' to reference a privileged experience of traveling to many countries.

The present study answers the call of Favell et al. (2007) to examine features of the individual's experience of globalization, and modifies the definition of global mobility. Isolating the experience of global mobility from the possession of opportunity to travel globally, the current study defines global mobility as an individual's experience of traveling across boundaries and living in diverse places, whether those places are in different countries or within the same country. The term global mobility represents the breadth and depth of the travel an individual has experienced across the globe. In developing a measure for global mobility, three dimensions of global mobility are measured—Familiarity, Connection, and Separation—and scores on the scales associated with these dimensions represent an individual's global mobility profile.

Dimensions of Global Mobility

Familiarity. Familiarity refers to the knowledge through experience gained by individuals because of traveling across boundaries and living in diverse places. It seeks to measure the number of cultures or places to which an individual has been exposed, and also the level of involvement in each place. This definition is operationalized by measuring the number of places where an individual has experienced specific activities thought to represent varying levels of involvement in a given culture. Examples of such activities include owning a cell phone, receiving a promotion at a job, or speaking another language. The number of places is measured with three different scopes, forming three sub-dimensions of Familiarity: International—measuring the number of

countries, Domestic—measuring the number of states, provinces, or regions in the country most widely experienced, and Regional—measuring the number of cities or towns in the state, province, or region most widely experienced.

In seeking to measure the amount of exposure and level of involvement, the dimension of Familiarity reflects the elements Schaetti noted as leading to greater experience of TCK outcomes: greater exposure to more cultural traditions (Lambiri, 2005). This dimension of global mobility also captures elements of the most commonly included other variables deemed important by TCK researchers: length of time spent abroad (addressed here not by number of years but by level of involvement), number of host cultures, and language proficiency (another measure of level of involvement) (Hervey, 2009; Hoersting & Jenkins, 2011; Lyttle et al., 2011; Melles & Schwartz, 2013; Peterson & Plamondon, 2009). Familiarity takes into account the level of involvement individuals have in the places experienced. A transient experience is likely not to produce as much familiarity with someplace as an extended stay, yet it is possible that a shorter length of time with greater involvement may lead to greater familiarity than an extended stay with little involvement. Greater involvement requires more adaptation, as does greater differences between the places experienced.

To account for differences between the places experienced, Familiarity is measured with three different scopes. TCK literature only looks at differences on an international scale, in terms of experiences in different countries. However, Schaetti (n.d.) references potential similarities between TCKs and "those who grew up mobile but within a single national context (domestic nomads)" (para. 4). To account for these

similarities in the proposed measure of global mobility, these domestic nomads are included on a Domestic scale—measuring moves within the same country but to a different state, province, or region. Likewise, those who move regionally, to a different city or town in the same region, may also experience some of the same outcomes related to uprooting and adapting to a new place, so they are included on a Regional scale. Based on the above considerations, the proposed global mobility dimension of Familiarity has three sub-dimensions: International Familiarity, Domestic Familiarity, and Regional Familiarity.

Connection. Connection is the attraction individuals feel toward the diverse places they have experienced. Understanding how much connection individuals feel to the places they have experienced is essential to predicting how much loss they will experience, because an individual would have nothing to lose if no connection were present. Loss is an important outcome in the TCK literature, one heavily tied to the uprooting involved in a mobile lifestyle (Bonebright, 2010; Cockburn, 2002; Gilbert, 2008; Hoersting & Jenkins, 2011; Pollock & Van Reken, 2001; Schaetti, 2000). A positive way of phrasing this aspect of having something to lose is the desire to remain connected instead of experiencing the impending loss. An additional aspect of Connection is identity. The development of identity in a TCK is another important outcome in the TCK literature (Bonebright, 2010; Cockburn, 2002; Collier, 2008; Hoersting & Jenkins, 2011; Pollock & Van Reken, 2001; Schaetti, 2000). This aspect of Connection has to do with how much an individual's identity is engaged in having spent time in a particular place. Identifying with a past place shows a unique form of

connection and attachment. Connection is operationalized by measuring individuals' desire for connection and identity engagement with past places.

Separation. Separation is the state of being unable to access things experienced in a past place. It must be considered in terms of current access that is restricted and anticipated lack of access in the future. Separation is operationalized by measuring current inability to access things experienced in a past place (Current Separation) and future or anticipated inability to access things experienced in a past place (Anticipated Separation).

Current Separation is about whether or not individuals have access to the same things accessed in other places. It may not be necessary to be in the same location as was experienced before to still have access to the same things, especially if the two places are very similar. For example, individuals might still be able to speak the same language or eat the same types of food. Other things may still be accessible, but become more difficult to access. For example, people from past places might still be experienced through video chat. How much time, effort, and expense are needed to access what used to be part of everyday life? The amount of difficulty in accessing things from past places is taken into account in this idea of Current Separation. Those who feel less able to access what they left behind will likely face more grief and loss, if indeed they felt connected to what was left behind.

Anticipated Separation is about whether or not individuals think they will have access in the future to what they experienced in a past place. If an individual anticipates returning to a location, this may affect how she responds in her departure. For example,

she may work harder to retain skills and knowledge that help her live in or connect to that place. Additionally, she may not experience as much loss in her departure, because she anticipates another chance to experience things associated with that place.

Separation is about the lack of access to what is left behind or what will become inaccessible due to individuals' journeys of living in diverse places. When Separation is paired with Connection, loss occurs. If individuals do not have a strong connection to what is left behind, then Separation may not result in loss. However, it is hypothesized that experience of more places leads to more Separation, and that often Separation does result in loss. Gilbert (2008) identifies many forms of loss in her qualitative study of TCKs, such as loss of persons, places, pets, possessions, and other existential losses. These are all the result of separation; loss does not occur without some kind of separation. Again, loss is an important outcome in the TCK literature (Bonebright, 2010; Cockburn, 2002; Collier, 2008; Gilbert, 2008; Hoersting & Jenkins, 2011; Pollock & Van Reken, 2001; Schaetti, 2000). Separation and Connection both hinge on the concept of loss, but Connection is about the love and attraction that would eventually lead to loss, were access to be lost, and Separation is about the access lost, which might be experienced as a loss.

Overall, the proposed model of global mobility includes three dimensions: Familiarity, Connection, and Separation. Familiarity is the knowledge gained by individuals via experiences of traveling across boundaries and living in diverse places. It seeks to measure the amount of exposure and the number of cultures an individual has experienced. Familiarity is measured with International, Domestic, and Regional scopes

(these form sub-dimensions of Familiarity). Connection is the attraction individuals feel toward the diverse places they have experienced; it measures desire for connection and identification with places experienced in the past. Separation is the inability to access things experienced in a past place and can be thought of in terms of current and anticipated separation. The proposed measure of global mobility has five scales that measure the amount of International Familiarity, Domestic Familiarity, Regional Familiarity, Connection, and Separation individuals have experienced.

Models Related to Global Mobility

There are not many models related to the idea of global mobility in the literature. The model that undertakes a task most similar is from Sociology, Tsai and Iwai's (2013) typology of global exposure. Tsai and Iwai are focused on access to international travel, which they say will become an indicator of privilege as globalization continues. They present a typology to qualitatively distinguish an individual's experience of global exposure (shown in Table 1). They distinguish four types: Locals, who are rooted in a geographic territory without connections beyond; Global Surfers, who frequently move around the world but do not build personal relationships; Networked, who have connections in other countries but are unable to travel; and Global Exposed, who frequently travel and possess relationships across national borders. Their separation of types is similar to the goals of a measure of global mobility—to make distinctions in the mobile experiences of individuals.

	No travel	Travel
No non-national relationships	Local	Global Surfers
Non-national relationships	Networked	Global Exposed

Table 1. Typology of Travel and Relationships (Tsai & Iwai, 2013)

Published in the area of nursing research, Aroian's (1990) model shares the most overlap with the proposed model of global mobility. Aroian (1990) conducted qualitative interviews with Polish immigrants to develop a model for adaptation to migration and resettlement. Her model posits that the two tasks of "resolving grief over loss and disruption" (p. 5) and "mastering resettlement conditions associated with novelty, occupation, language, and subordination" (p. 5) are necessary in order to feel at home in the new place. These elements match the dimensions of global mobility exactly. Mastery of the new environment is captured by the Familiarity dimension, grief resolution is captured by the pairing of the Connection and Separation dimensions (because it is the pairing of having been connected and experiencing separation that produces loss), and feeling at home in the new place is another echo of the Connection dimension.

An interdisciplinary database search for “geographic mobility” revealed a few other related models from migration research. Myers (2010) bases his research about the way birth intentions are affected by geographic mobility on a model of migration. The model of migration he speaks of contains two characteristics, disruption and adaptation, which are present in both international and domestic migration. Disruption and adaptation are what the global mobility dimensions of Separation and Familiarity attempt to capture. Additionally, in a study on how geographic mobility affects

philanthropic engagement, researchers examined three community factors--sense of belonging, social connections, and regional culture--seeing participant levels of these factors as directly resulting from participant geographic mobility (Clerkin, Paarlberg, Christensen, Nesbit, & Tschirhart, 2012). This provides support for the inclusion of sense of belonging in the Connection scale and social connections and regional culture in the Familiarity scales in a measure of global mobility. Furthermore, Hopkins, Reicher, and Harrison (2006) conducted a study on how national identity affects young adults' decisions about future geographic mobility. Their hypotheses and results suggest that identity and mobility are intertwined, further supporting the inclusion of identity in the Connection scale of global mobility. This interdisciplinary research supports the proposed dimensions of global mobility.

In the area of TCK research, some early models examine the identity and skill development of internationals. Bennett (1986) identifies stages towards developing intercultural sensitivity. He proposes three ethnocentric stages in response to difference—denial, defense, minimization—and three ethnorelative stages in response to difference—acceptance, adaptation, and integration. A scale was developed based on Bennett's (1986) Developmental Model of Intercultural Sensitivity that measures intercultural competence on a developmental continuum—the Intercultural Development Inventory (IDI) (Hammer, 2011). This inventory places individuals within the continuum of ethnocentric and ethnorelative stages in terms of how they handle cultural differences. Bennett's (1986) continuum of stages is what individuals find themselves in

when they experience another culture, but Bennett's stage model does not address how to measure global mobility.

Similarly, Schaetti (2000) proposed a model with four developmental transactions, which address aspects of the experience of someone living abroad but does not address a way of measuring global mobility. She defines (based on a definition from Bennett, 1993) a transaction as the process of gaining a new level of clarity and integration between the individual and the experience. She posits developmental transactions of repatriation, nationality, difference, and plurality. Repatriation is about handling the loss of an international lifestyle; nationality is about what kind of national identity a person assumes (insular, international, transnational); difference is about handling the experience of marginality in home and host cultures; plurality is about handling the experience of contradictory truth found in different cultures. While focusing on the same population, these models focus on particular outcomes of global mobility rather than actually measuring global mobility.

Measures Related to Global Mobility

No one has attempted to measure global mobility thus far. A search for measures that are related to the concept of global mobility yields measures that are only distantly related at best. The most similar measures are found in the areas of acculturation and loss, echoing global mobility dimensions of Familiarity, Connection, and Separation.

Acculturation measures often seek to measure identification with or competence in an ethnic culture or host culture, which is similar in some ways to the global mobility dimensions of Connection and Familiarity. Much acculturation research is based on

acculturation to the U.S. and some measures, such as the Abbreviated Multidimensional Acculturation Scale (AMAS) and the American Identity Measure (AIM), include language about the U.S. in the items (Schwartz et al., 2012; Zea, Asner-Self, Birman & Buki, 2003). Other measures, such as the Multigroup Ethnic Identity Measure-Revised (MEIM-R) and the Ethnic Identity Scale (EIS), ask about identification with the ethnic group of origin (Phinney & Ong, 2007; Umaña-Taylor, Yazedjian & Bámaca-Gómez, 2004). Another scale, the Ethno-Cultural Identity Conflict Scale (EIC), does not mention any specific home or host culture, instead asking about confusion and conflict in an individual's sense of identity (Ward, Stuart & Kus, 2011). The items about identity on these measures overlap some with ideas related to identity on the Connection scale, and the items about competence on the AMAS overlap some with ideas on the Familiarity scales. However, when measuring global mobility, identity is only part of Connection, and identity takes on a complex nature for those who have lived in multiple host countries and perhaps feel little connection to their "home culture."

Loss measures share some commonalities with the Separation dimension of global mobility. Some loss measures, like the Multidimensional Acceptance of Loss Scale, the Perinatal Grief Scale, the Negative Emotions at a Loss Scale, and the Todd Loss Scale, focus on the emotions and thoughts that accompany adjustment to a specific loss event (Ferraro, Escalas & Bettman, 2011; Ferrin, Chan, Chronister & Chiu, 2011; Lawrence, 1995; Toedter, Lasker & Alhadeff, 1988). These have little to do with Separation because they measure an emotional reaction and adjustment to loss instead of measuring the scope of how much loss is present. One loss measure was found that had

a more substantial relationship to Separation. The Multidimensional Loss Scale (MLS) was designed for relevance to refugee resettlement. It asks questions about experiences of being "cut off" from various opportunities, cultural experiences, and relationships (Vromans, Schweitzer & Brough, 2012). The items on the MLS are similar to items developed to measure Separation, and share in common a goal of assessing the scope of Separation experienced by participants. However, the items on the MLS address losses already experienced, whereas Separation also accounts for anticipated losses as well.

Methodology

Topics used for brainstorming. In developing a measure for global mobility it is important to be comprehensive in writing items that address the construct (DeVellis, 2003). In order to aid the process of writing a comprehensive pool of items, the literature was examined for topic areas important to include in a measure of global mobility. Some evidence was found in variables examined in TCK and expatriate research. Rafanello (2005) did a study with expatriate Navy wives and used the Relocation Problem Checklist as one of her instruments (reported by Rafanello to be developed by Munton, 1992, in an unpublished manuscript). The checklist included items related to social relationships, place of residence, career, education, and community (Rafanello, 2005). Peterson and Plamondon (2009) created their own measure for TCKs of "balanced acculturation" with some relevant topics for global mobility including culture, education, language, values, and participation in organized groups. In another study on TCKs, Hervey (2009) also included some of her own items related to relationships, culture, and education. Based on these sources some important

topics to consider in writing items for global mobility are: relationships, residence, career, education, community (organized groups), culture, language, and values. Additional topics were added in the brainstorming process.

Choice of Rasch for analysis. Rasch model (Rasch, 1961) was adopted to evaluate the psychometric characteristics of the items. It is suitable for analyzing categorical data as a function of the respondent's ability and item difficulty. Mathematically, it is similar to the one-parameter model from Item Response Theory (Birnbaum, 1960). It is the interpretation of the model parameters and its philosophical implications that separate proponents of the Rasch model from Item Response modeling. The parameters of Rasch model characterize the proficiency of the respondents and the difficulty of the items as locations on a continuous latent variable. By comparing the locations of a person's ability relative to the difficulty of an item, we are able to estimate the probability for the person to fall in a particular category of the item. With Rasch calibrations, new scales with unprecedented metric validity and reliability can be built. Existing scales can be improved or rejected on a sound theoretical basis. Since Rasch measurement is based on its congruence with the requirement of invariant comparison measurement, invariance can be achieved.

METHOD

According to DeVellis (2003), scale development has eight steps: 1) determining what to measure, 2) generating an item pool, 3) determining the format for measurement, 4) having the initial item pool reviewed by experts, 5) considering the inclusion of validation items, 6) administering the items to a sample, 7) evaluating the items, and 8) optimizing scale length. The listing of consecutive steps may be misleading, as the process is iterative and overlapping. However, all of these steps were involved in developing a measure for global mobility.

Construct Development

The first step taken was construct development, or determining what to measure. DeVellis (2003) says, "If it turns out that extant theory offers no guide to the scale developers, then they may decide that a new intellectual direction is necessary" (p. 60-61). Though the literature was investigated, no theory was found to address the concept of global mobility and explicate its important aspects. However, the literature does provide support for the construct of global mobility and its dimensions as well as evidence that global mobility is an important and growing phenomenon. This work of developing a measure for global mobility, therefore, began with defining the construct of global mobility and researching and defining its dimensions. In addition to support from the literature for dimensions of global mobility, investigative conversations contributed to the development of the construct. A Facebook group titled 'Global Mobility' was designed in order to solicit feedback from participants about ideas related to this

research. The group, which had 122 members as of January 2016, gave feedback about questions posted, such as, "Which ideas do you think are most important to the idea of global mobility?" or, "How would you distinguish between a long-term move and a short-term move?" A number of informal conversations occurred with people encountered in day to day life, soliciting their feedback on parts of the global mobility construct that were being developed, since almost everyone has some experience of traveling and living in various places. Additionally, a focus group was hosted to discuss ideas of global mobility and to crystallize the important dimensions.

The original model proposed had five dimensions of global mobility: Age, Agency, Familiarity, Connection, and Separation. The dimension of Age addressed whether a move is during developmental years or not. The dimension of Agency addressed how much choice individuals have in moving, and how suddenly the decision to move transpires. These two dimensions (Age and Agency) were dropped at the suggestion of the author's committee, in order to reduce the scope of the project. These dimensions remain important and influential in an individual's global mobility experience despite being beyond the scope of the current project. The three remaining dimensions of Familiarity, Connection, and Separation were modified to varying degrees during the process of item development.

Familiarity is measured with three scopes to account for differences in places experienced: International, Domestic, and Regional. There is no easy way to measure the cultural and other differences between places individuals have experienced. Even if there were, it would be an arduous process to calculate that difference for each

individual participating in a survey (e.g. participant A lived in cities in France and the Netherlands and the cultural differences are X amount, participant B lived in cities in China and Australia and the cultural differences are Y amount). Therefore, a less accurate but simpler method is adopted, by measuring Familiarity with three scopes: International, Domestic, and Regional. International Familiarity addresses experiences in different countries. Domestic Familiarity addresses experiences within one country. Regional Familiarity addresses experiences within one state, province, or region. These geographic scopes of Familiarity are measured on separate scales in the resulting measure of global mobility.

For the remaining two dimensions, Connection and Separation, items were developed for their proposed aspects. For Connection, items were developed to address aspects of identity engagement and desire for connection. For Separation, items were developed to address current separation and anticipated separation. These aspects were used as a guide for item development.

Generating Items and Determining Format

The second and third steps, item generation and determining format, were undertaken next. DeVellis (2003) says that items should be generated that exhaust the possibilities for ways of accessing the desired construct. Items for global mobility were generated based on the definitions of the dimensions of global mobility: Familiarity, Connection, and Separation. Items for Familiarity were designed to assess the three sub-dimensions of Familiarity: International Familiarity, Domestic Familiarity, and Regional Familiarity. In an effort to be thorough, items were generated addressing relationships,

community, culture, language, school, work, transportation, climate, leisure, government, medicine, food, and residence. The process of writing items helped bring to light parts of the definitions and relationships between dimensions that needed to be clarified, so definitions of the dimensions were refined. Then items were revised and augmented accordingly.

Simultaneous to item generation, formats for measurement were considered. Most formats considered were Likert scales, because this type of scale is common in psychology and survey research and works well with Rasch analysis. Likert scales are often used to measure attitudes, feelings, or beliefs, but for the purpose of quantifying global mobility it is important to measure true differences in amount of experience. Choosing a format for items on the Familiarity scales proved a difficult task, because Familiarity concerns the number of different places experienced and amount of experience gained from each place. Therefore, items must be rooted in objective fact, not an individual's subjective impression of how much he or she had experienced.

The first scale format proposed for Familiarity items included response options of: "one or two," "a few," "some," "many," and "very many." This scale was found to be highly subjective. When asking a question like "How many countries have you experienced?" volunteer respondents who had been to nine or ten countries responded "some" or "a few," whereas others who had been to three countries also responded "some." Such a scale would do more to measure "global confidence" than global mobility as defined in this study.

A numeric rating scale was also considered for Familiarity items, in which respondents would simply fill in a number to indicate their answer (e.g. 9, for nine countries). This rating scale is objective, but it also leads to problems in comparing responses to each other. For example, how does one provide a composite score on a construct for someone who has had a cell phone in two countries, visited historical landmarks in ten countries, and done a household chore in one country? Should items be weighted differently? If so, how should the weighting be determined? It quickly becomes unwieldy. This rating scale was not used because it is not a Likert scale, making it more difficult to evaluate the items and the rating scale using Rasch analysis, and because it is mentally taxing for the respondent to answer, at a level of specificity that is not necessary.

Finally, a Likert rating scale was selected for Familiarity items that allows responses to be compared to an anchor number. For example, one item read, "I have cooked food in five countries." Participants answer this question by comparing the number of countries in which they have cooked food to the anchor number (in this case five) and choosing from the following response categories: "much fewer," "slightly fewer," "about the same," "slightly more," and "many more." Two different anchor numbers were used for Familiarity items, in anticipation of certain question stems generating higher number responses than others, and wanting each item to discriminate well between people with greater and lesser amounts of Familiarity. Three and five were chosen as appropriate anchor numbers, because if there are five response categories, the midpoint should be at least three, and because five was sufficiently different from three

and high enough to discriminate well for questions with higher number responses. Having different anchors is not a problem within the Rasch model because items are given a score according to their difficulty level. Additionally, response categories comprised of comparative words were chosen instead of giving ranges of numbers (e.g. "0-2," "3-4," "5," "6-7," "8 or more") because two different comparative anchors would then result in two different sets of response categories, and the Rasch model works best if all items on a given scale use the same response categories. The response categories chosen are not a common format in psychology research, so specific instructions must be included in the survey to ensure participant comprehension. This format allows Familiarity items to address both number of places (via the response categories) and amount of experience because of the varying difficulty level of question stems (a more difficult question stem would be one that contains a less common experience).

More common Likert scale response categories were chosen for the other two dimensions, Connection and Separation. A rating scale was chosen with five levels of agreement: "strongly disagree," "disagree," "neither agree nor disagree," "agree," and "strongly agree." Items were phrased so as to ask about the participants' connection and separation with places previously experienced. The traditional response categories worked well for this because these categories address perception of connection and separation as opposed to amount of experience.

Expert Review

Once a preliminary list of items had been established, feedback was solicited from experts in fulfillment of the fourth step of scale development. Feedback from

experts serves to enhance content validity. The experts consulted are eight people who each have experience in multiple countries. Seven of these experts have spent a large portion of their career in a caregiving role for TCKs or expatriates. For example, several of these experts have had "global member care" positions, in which their role was to offer counseling or more informal personal support conversations to expatriate staff or TCKs of their employing agency. At the time experts were consulted, items were divided into sections according to dimensions: Familiarity (including International, Domestic, and Regional Familiarity), Connection, and Separation. Each expert was sent only one section (approximately 60 items) to review, so that giving feedback would not be overly taxing for experts. Four experts reviewed the Familiarity items, three reviewed the Connection items, and three reviewed the Separation items. The complete item pool was sent to each expert to allow them to reference other items if needed, and one expert gave feedback on items for all three dimensions. Each expert was also sent definitions for each dimension of global mobility, as well as the list of topic areas (e.g. work, community, culture, etc.) used to help generate items. The experts were asked to provide feedback in five categories (the bullets below are excerpted from emails sent to the experts):

- Clarity and understandability: Is the wording of the items clear? Do they make sense?
- Fit with description: Do the items match well with the description I've provided of that dimension?

- Fit with experience: Do the items make sense with your own experiences and knowledge of global mobility?
- Gaps: Are there certain ideas you feel I've left out that would be important to include?
- Misfits: Are there certain ideas you feel I've included that don't fit well?

The experts gave positive feedback about the comprehensive nature of the items. They also gave feedback about specific items that needed to be clarified, a few suggestions for additional items, suggestions to slightly modify the response options, and the suggestion to make the instructions clearer. These suggestions were used to make revisions to the item pool before the pilot test commenced.

Items for External Validity

According to the fifth step of scale development, items were also selected to provide evidence of convergent validity. The validity framework advocated by Messick places convergent validity in the larger grouping of external validity (1995). Therefore, the present study uses convergent validity to provide evidence of the external aspect of validity. (The items used for convergent validity can be seen in Appendix A, and descriptive statistics for these items can be seen in Appendix B.) Two different sets of validity items were included, demographic items and attitude items. The demographic items (DEM22 and DEM23) asked for objective details about the participants' exposure to other countries. In item DEM22, participants were asked to give the number of years spent in each of the three countries in which they had spent the most time. In item DEM23, participants were also asked to give the number of countries they had been to

for any length of time (not counting if they had only been in the airport of a country). People with higher scores on this set of demographic items (scored using Rasch analysis) were hypothesized to also have higher scores on scales of global mobility.

The second set of items is based on attitudes toward cross-cultural relationships and working abroad. Melles and Schwartz (2013) found that levels of exposure to other countries predicted levels of prejudice in Adult Third Culture Kids (ATCKs). They found this result to be consistent with the Affective subscale of the Quick Discrimination Index, but not with the Cognitive subscale, and surmised that this difference was because living in other countries has more to do with interpersonal relationships and other experiential aspects than the forming of non-prejudiced cognitive opinions.

Some people would consider a romance with someone from a different race. Others would prefer to "stick to their own kind." What do YOU think? Please check the statement that you agree with for each behavior:				
	It's not a good idea	I would not, but it's okay for others	I would do this	I have done this
Date an [African American/Asian American]				
Live with an [African American/Asian American]				
Marry an [African American/Asian American]				
Have a child with an [African American/Asian American]				

Figure 1. Survey Item on Attitudes Toward Interracial Relationships (Herman & Campbell, 2012)

A simple measure that looks at the relational aspects of interracial prejudice can be found in Herman and Campbell's (2012) items included in the 2008 Cooperative

Congressional Election Study, which measured attitudes of Whites towards interracial marriage with Blacks and Asian Americans (seen in Figure 1). Herman and Campbell's items were adapted to fit the current research. Instead of asking about relationships with a specified race, the questions were phrased to ask about relationships with someone not of your own culture. Additional questions were included about willingness to work abroad. These questions used similar response options but asked about willingness to work for a certain length of time in a country not previously visited. After consulting with Mary Campbell in person (personal communication September 10, 2015), some additional modifications were made. She suggested separating cognition from behavior, and this change was included in the pilot test. Items that address cognition with the question, "What do you think?" are referred to as Think items. Items that address behavior with the question "Have you done this?" are referred to as Done items.

Further modifications were made after the pilot test. These are described in the Results chapter in the section on participant feedback. The revised items appear in Appendix A. Those who are more open to cross-cultural relationships or work in countries they have not previously visited in their thinking and behavior are hypothesized to also have higher scores on the scales of global mobility, so these items were used to establish convergent validity.

Pilot-Testing

The sixth and seventh steps of administering items to a sample and evaluating items occurred twice, because of the inclusion of a pilot test prior to data collection. After the item pool was revised with feedback from experts, 252 global mobility items,

along with 30 demographic items and 16 validity items (298 total items), were uploaded to a survey on Qualtrics (an online survey tool), and the link to the survey was posted on the author's personal Facebook page and emailed to contacts on the author's personal email update list. The survey took participants approximately 45 minutes to one hour to complete. Within 24 hours, over fifty people had participated in the pilot test, and the survey was closed. At the bottom of each survey page was a blank text box inviting feedback from participants with the words "Since this is a pilot test, I am providing a comment box at the bottom of each page in case you have feedback that will help me improve the survey. Do you have any feedback about this page?" Fifty-two participants provided feedback on at least one page. This feedback was used to modify the survey before the next data collection and further enhanced content validity of the items.

A preliminary analysis was conducted following the pilot test using the same techniques used for analysis after data collection. Exploratory principal component analyses were run in SPSS (version 23), and Rasch analysis was conducted using Winsteps (version 3.80.1). These preliminary results were used to revise or drop some misfitting or poorly written items.

Sample for Pilot Test

The sample for the pilot test included 60 people who completed the survey. Ages ranged from 18 years old to over 70 years old and 38 percent of all participants were in the 18 to 29 year old age range. Twenty-eight percent of participants were male, and 72 percent were female. Ninety percent of respondents reported their ethnicity as White or Caucasian; the other ten percent included Asian/Pacific Islander, Hispanic or Latino, and

others. Ninety-five percent of respondents spoke English as a native language, and the other five percent were bilingual English and Spanish speakers from childhood. A third of respondents reported that they had lived in a country other than where they currently live for at least six months prior to age eighteen. Gleaned from responses concerning the three countries lived in longest, 46.7 percent of respondents lived in two countries for more than one year, and 16.7 percent of respondents lived in at least three countries for more than one year. (Results from the pilot test are reported in the Results chapter.)

Data Collection

Procedure

Following revisions made after the pilot test, the survey was administered again for data collection, repeating step six of scale development. The revised survey consisted of 276 total items: 229 global mobility items, 31 demographic items, and 16 convergent validity items. It took about 40 minutes to one hour to complete the survey. It was uploaded to Qualtrics and the link to the survey was posted on Facebook in multiple locations—on the wall of the author and on ten different group pages, as well as shared by numerous others on their own walls. The request for participation was posted on groups for TCKs, expatriate researchers, global member care providers, and graduate student friends. Individual Facebook messages and emails were also sent to contacts of the author who have lived in multiple countries to invite their participation. The link to the survey was sent to the author's personal email update list, and was also posted in her church's weekly newsletter. Additionally, the link was sent out on several email listservs: the Taiwan Missionary Fellowship email list, and the Global Member Care

Network Newsletter email list. The link was also posted on several websites besides Facebook: Twitter, Tumblr, Reddit, Instagram, and LinkedIn. Moreover, a friend of the author wrote an article about the author's story of becoming involved in this research and posted the article, along with a link to the survey, on Use Your Difference (UYD) Media (a website and blog for TCKs). Participants were invited to share the link to the survey with others, and many of them told the author that they did so, sometimes sharing with their whole network of contacts through email or Facebook. Data collection began on November 23, 2015, and concluded on January 6, 2016, lasting a total duration of six weeks and two days.

Sample

The number of people who completed the whole survey was 621. Because completing the survey took about 40 to 60 minutes, or in some cases longer, a number of participants dropped out part way through (generally after completing a page in the online survey), in most cases completing nearly all the items prior to the point at which they dropped out. There were 918 responses included in the file used for statistical analysis. Table 2 shows the number of complete responses per section of the online survey and the percentage represented out of the 918 responses included in the file.

	Number of Responses	Percentage of responses out of 918
Demographic Items	863	94%
International Familiarity Items	798	87%
Domestic Familiarity Items	704	77%
Regional Familiarity Items	643	70%
Connection Items	634	69%
Separation Items	622	68%
Validity Items	621	68%

Table 2. Number of Complete Responses per Section of the Online Survey.

The Rasch model assumes unidimensional measurement. Therefore, each scale is analyzed separately. Because of this separate analysis, more responses could be used in the analysis of scales at the beginning of the survey than at the end. Furthermore, Rasch analysis is very tolerant of missing data and does not require a complete set of items for every person in order to evaluate items and persons. The exact number of responses used to estimate the Rasch model for each scale can be seen in Table 5 (in the Results chapter). There were 798 people who completed all the International Familiarity items and sample statistics are given for those 798 people.

Of those 798 participants, 37 percent were 18 to 29 years old, 22 percent were 30 to 39 years old, 37 percent were 40 to 69 years old, and three percent were 70 years or older. The sample was 29 percent male, 70 percent female, and 0.5 percent "other." Eighty percent were White or Caucasian, 9.6 percent were Asian/Pacific Islander, 3.6 percent were Hispanic or Latino, three percent were multiracial, 0.8 percent were Black or African American, and the remaining 2.7 percent were other races. In this sample, 78.4 percent spoke English as their native language, 13.2 percent were bilingual or trilingual from childhood, 2.4 percent spoke Chinese as their native language, 1.6

percent spoke Spanish as their native language, and the remaining 4.4 percent spoke another native language. In response to the question about the three countries lived in longest (746 responses to this item were left after illogical responses were removed), 501 respondents (67.2 percent of 746) lived in their second-longest country for more than one year, and 213 respondents (28.6 percent of 746) lived in their third-longest country for more than one year.

Three-hundred-and-one participants (37.7 percent) endorsed that they considered themselves to be TCKs or that they had lived in a country other than their parents' home country for at least six months before age 18. Eighty-four participants (10.5 percent) endorsed having some connection with the military, 40 participants having been in the U.S. military or married to someone who was in the U.S. military, and 49 participants having been children of someone in the U.S. military. Additionally, 90 people (11.3 percent) reported coming to the U.S. as an international person (not a U.S. citizen at the time of arrival). These subsamples fulfilled the goal of obtaining 200 TCKs, 50 people who had been affected by life in the U.S. military, and 50 internationals.

Data Analysis

The seventh step of item evaluation was repeated in data analysis. Preceding analysis of the data, selected responses were checked for consistency and recoded. In particular, the question, "How many years have you spent in the country you have lived in the longest?" and the following two questions (DEM22), which asked about time spent in the second and third longest countries, produced some inconsistent responses. Some responses (2.6 percent of responses—24 of 916, and only half of these were

complete responses) seemed likely, but were ordered incorrectly (i.e. a longer period of time for their second-longest country than for their longest country). These mis-ordered items were re-ordered because it is likely participants were not reading carefully and responded in chronological order of their experience of countries instead of the order of length of time. Some participants had responses that were impossible, for example, answering 34 years for each of the above questions about countries lived in longest, but listing their age as between 30-39, perhaps because they did not read the question subtext saying that participants must click on the slider at zero in order for the question to be counted as answered by Qualtrics (this item can be seen in the exact way it appeared on Qualtrics in Appendix A). Some participants also had responses that were unlikely, such as 4, 3, 2, suggesting that they have not lived in any country for longer than four years (possible, though unlikely); perhaps these respondents mistakenly took for granted the country they lived in longest and excluded it. These impossible and unlikely responses to this question (about 5.8 percent of responses—54 of 916, two thirds of which were complete responses) were deleted, so as not to affect the correlations testing for convergent validity. Future use of this question is not recommended unless in a modified format restricting participant answers to ordered and logical answers. Also, at this time the negatively worded Separation items (which indicated the opposite of Separation), such as "I will likely see most of my friends from my teenage years again," were reverse-scored in order to be oriented with the latent trait so that a higher score implied more Separation.

The discussion on the validity of the instrument is organized around Messick's (1995) framework of validity evidence. Specifically, evidence is presented concerning five of the six aspects Messick suggested: structural, generalizability, content, substantive, and external aspects of validity. The consequential aspect of validity is not addressed within the scope of the current project.

The internal structure of the instrument was used as evidence for the structural aspect of validity. SPSS was used for principal components analysis and cross-validation. An exploratory principal components analysis, using principal components analysis with a varimax rotation and Kaiser normalization, was conducted for all global mobility items in order to determine how many factors show the best fit for the data and the models of global mobility posited. Three possible models were considered for the structure of global mobility. One model posited three factors, one posited five factors, and one posited seven factors. (These configurations can be seen in Table 4 in the Results chapter.) This type of principal components analysis provides structural validity for the measure. Unidimensional principal components analysis was also performed on the items for each of the hypothesized scales, corresponding to the results from the exploratory principal components analysis. (Unidimensional principal components analysis results can be found in Appendix C.) These unidimensional analyses allow for poorly performing items (with low component loadings) to be identified on each scale. Cross-validation was also conducted, comparing the results of principal components analysis run on separate, randomly-selected halves of the data, to test the generalizability of the data.

For the content aspect of validity, item quality indices were evaluated for each item by scale, including the point-measure correlations and weighted mean-square fit indices for each scale (i.e. International Familiarity, Domestic Familiarity, Regional Familiarity, Connection, and Separation). Winsteps (a software program designed solely for Rasch analysis) was used to conduct a Rasch analysis. Through Rasch analysis, person ability and item difficulty are estimated in logits (a unit of measurement in Rasch analysis that represents the natural log of the units). The item-person map, or the Wright map (Boone, Staver, & Yale, 2013), allows a side-by-side mapping of items and persons to see the distribution of items and persons in comparison to each other (See Wright maps in Appendix D). This allows insight into how well the spread of item difficulty level matches the spread of estimated person ability. Fit statistics such as infit (information weighted mean-square, sensitive to irregular inlying patterns), and outfit (unweighted mean-square, sensitive to unexpected rare extremes), as well as standardized fit statistics (ZSTD, Wright & Masters, 1982) are produced in Winsteps, allowing the items with appropriate fit to be selected for a final version of a measure of global mobility. The mean-square fit statistics show the amount of distortion in the measurement system. Statistically, they are Chi-square statistics divided by their degrees of freedom, and therefore are always positive. Their expected value is 1.0. Values less than 1.0 indicate observations are too predictable. Values greater than 1.0 indicate unpredictability. Reasonable mean-square fit values used in this study are between 0.6 and 1.4 (Smith & Smith, 2004). Standardized fit values are t-tests of the hypothesis "Do the data fit the model perfectly?" and are reported as z-scores. Their

expected value is zero. Less than zero indicates that observations are too predictable. More than zero indicates lack of predictability. Reasonable standardized fit values used in this study are between -2.0 and 2.0 (Smith & Smith, 2004).

For the substantive aspect of validity, relationships between the item distributions, intertrait correlations, and rating scales were evaluated. All five scales (International Familiarity, Domestic Familiarity, Regional Familiarity, Connection, and Separation) were analyzed together (using Winsteps) to reveal the hierarchy of constructs, demonstrating the relationship among the subscales. It was hypothesized that Connection would be at the bottom of the hierarchy because of the more subjective nature of its items, and because Connection is expected to be easily endorsable for most people. In examining intertrait correlations, it was hypothesized that Domestic and Regional Familiarity would have comparatively higher intertrait correlations (since they both deal with a smaller scope of travel, as would International Familiarity with Connection and Separation scales. This is because those who experience Familiarity with an international scope are likely to experience greater separation and connection than those who experience Familiarity with a domestic or regional scope. Rasch analysis allows for an evaluation of rating scale functioning based on Linacre's (2002) criteria, providing further support for the substantive aspect of validity.

Pearson correlations were used to examine convergent validity. First Winsteps was used to generate an ability score for each person for each set of convergent validity items (Demographic items, Think items, Done items, and Think and Done items together). Next, SPSS was used to run correlations between the person scores for each

scale and each set of convergent validity items. The items used for validity appear in Appendix A and consist of two demographic items (DEM22 and DEM23, forming the set of demographic items) and two sets of items asking about cognition (Think items) and behavior (Done items) in relation to engaging in relationships with someone from another culture or working abroad. Correlations with these sets of items provided important evidence for the external aspect of validity.

Independent samples t-tests were used to test for group differences. For age, those 18-39 were group one and above 40 were group two. For gender, the "other" category was removed and the t-test compared males and females. For ethnicity, responses of White or Caucasian formed group one and group two included Arab, Asian/Pacific Islander, Black or African American, Hispanic or Latino, Indigenous or Aboriginal, Multiracial, and "other" responses. For native language, native English speakers were group one, and those who responded with Spanish, Arabic, Chinese, Bilingual from Childhood, Trilingual from childhood, or "other" as their native language were group two.

Optimizing Scale Length

Optimizing scale length involves choosing the best items from the original 229 items analyzed to create a shortened Measure of Global Mobility, satisfying the eighth step of scale development. The analysis of the original 229 items revealed some items that did not perform well. Additionally, the measure needed to be shortened in order to be more useful, or optimal, in future research. The best items for each scale on the shortened measure were chosen using indices of fit obtained from the analysis of the

original 229 items. These indices of fit included factor loadings from unidimensional principal components analysis, and the outfit statistics, standardized outfit statistics, point-measure correlations and item measure scores (an indication of item difficulty) from Rasch analysis. Items were chosen that had good indicators of fit as well as good spread of item difficulty so as to best cover the range of participants' experience levels. When possible, items were also chosen so as to represent a range of topics, as long as they also met the above criteria. This resulted in a set of 31 items, which were then analyzed with the same techniques and data that were used to analyze the original 229 items to establish evidence for the validity of the shortened measure. The rating scales used for each scale were also evaluated to ensure that they were working satisfactorily. The result is a 31-item Measure of Global Mobility that can be used in future research.

RESULTS

Pilot Test Results

Structure of the Measure

Results from the pilot test indicated plausible factor structure for the measure of global mobility. Prior to the principal components analysis, it was unknown which of several scale configurations would fit the data best (see Table 3 for scale configurations

Configuration	Subscales
Three Scales	Familiarity (International, Domestic, Regional)
	Connection (Desire for Connection, Identity)
	Separation (Current, Anticipated)
Five Scales	International Familiarity
	Domestic Familiarity
	Regional Familiarity
	Connection (Desire for Connection, Identity)
	Separation (Current, Anticipated)
Seven Scales	International Familiarity
	Domestic Familiarity
	Regional Familiarity
	Desire for Connection
	Identity
	Current Separation
	Anticipated Separation

Table 3. Potential Scale Configurations for Global Mobility

considered). Exploratory principal components analysis showed the five-scale configuration to be the best fit, in which items mostly clustered together on different

factors according to their scales. The five components extracted explained 47.3 percent of the variance.

Rasch Evaluations

Rasch analysis yields a measure score for each item and for each person in logits. The measure scores represent the difficulty levels of the items and ability levels of the persons. In this study, a more difficult item (high measure score) is one that requires high levels of global mobility experiences in order to score high on the item. In other words, few people are expected to rate this question highly. Similarly, a person with a high ability score is one who has experienced higher levels of global mobility; compared to other people, this person is expected to score high on more items than others are. Through Winsteps, item difficulties and person abilities are mapped side-by-side so that the range of persons plotted at their ability levels can be compared to the range of items plotted at their difficulty levels (see Appendix D for examples of these types of mappings).

Winsteps mappings revealed that some items on the Familiarity scales were beyond the experiences of most participants. A segment of the Connection items appeared to be below the average person ability, while the Separation items appeared to be appropriate to the sample. These offset mappings might suggest that items should be adjusted so that their difficulty levels are evenly spread over the range of person abilities. However, no changes were made to the survey in this regard, because the sample was small (only 60 people) and potentially not representative—a large percent of

the pilot test sample had not lived in another country for more than one year (53.3 percent).

Some items were dropped or revised because they performed poorly according to unidimensional factor analyses and Rasch fit indices. Several indices were considered, and items were considered for deletion if they were flagged by multiple indicators. First, One indicator came from the unidimensional factor analyses. If the item loading on the unidimensional principal components analysis for the relevant scale is less than 0.4, this is an indication that the item does not fit well with the other items on the scale. Second, other indicators come from the infit and outfit mean-square statistics in the Rasch analysis. Poor fit is indicated if the infit or outfit mean-square statistic does not fall between 0.6 and 1.3. If the outfit mean-square is more than 0.5 above or below that range, this is considered an additional indicator of poor fit. Third, a final indicator came from the point-measure correlation statistic in the Rasch analysis. If the point-measure correlation is below 0.5, this is an indication of poor fit. Every item that had more than one indicator of poor fit was considered for deletion. Items toward the end of the survey were treated more leniently because the sample size decreased toward the end of the survey, making the results not as trustworthy. See Appendix E for a list of items dropped after the pilot test.

The rating scale structure was also evaluated by fitting the data to a Rasch rating scale model (Linacre, 2002) to see if any adjustments needed to be made. Each construct was evaluated separately. A category probability graph can be obtained from Winsteps that plots the probabilities of participants choosing each rating scale response

category (i.e. “much fewer,” “slightly fewer,” “about the same,” “slightly more,” “many more;” or “strongly disagree,” “disagree,” “neither agree nor disagree,” “agree,” “strongly agree”). Each rating scale response should have selected reasonable amount of exposure or visibility to people. This is easily identified visually on the plot obtained from Winsteps by checking whether the curve of each response category peaks above the others at some point in the plot. Two rating scales were used in this measure of global mobility—“much fewer” to “many more” for each of the Familiarity scales, and “strongly disagree” to “strongly agree” for the Connection and Separation scales—and each was evaluated separately by construct (i.e. five separate evaluations, one for each scale). Results showed no problems with the rating scale used for the Familiarity scales. However, results for the five-point level of agreement scale showed that the third response option (“neither agree nor disagree”) had no peak on the plot. Figures 2, 3, and 4 show the category probability plots for Connection and Separation scales with the original five-point level of agreement, and alternatives of four-point or three-point level of agreement categories. As seen from Figures 2, 3, and 4, four-point level of agreement is the only category choice that leads to “visible” peaks for each category. Therefore, a change was made to offer only four-point level of agreement for Connection and Separation items with “neither agree nor disagree” removed, leaving: “strongly disagree,” “disagree,” “agree,” and “strongly agree.”

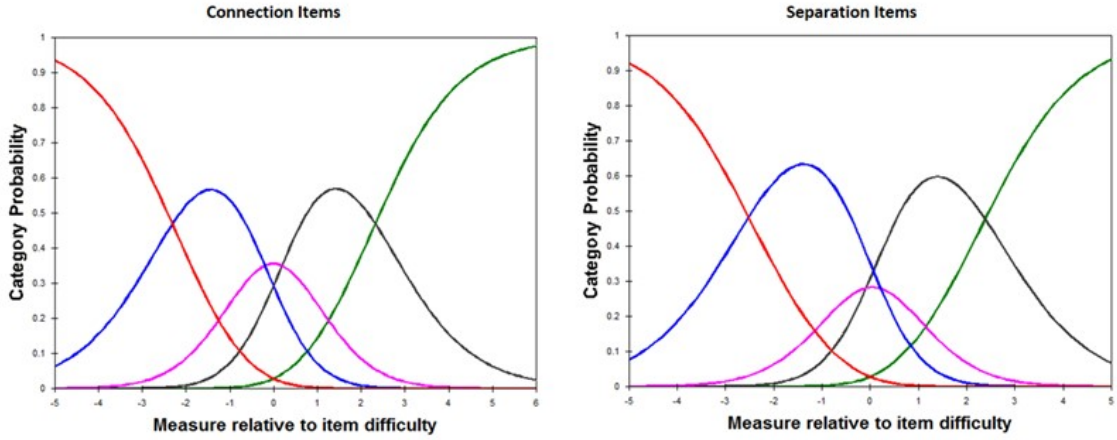

Figure 2. Category Probabilities for Five-Point Level of Agreement
Note. Red represents "strongly disagree," blue represents "disagree," pink represents "neither agree nor disagree," black represents "agree," and green represents "strongly agree."

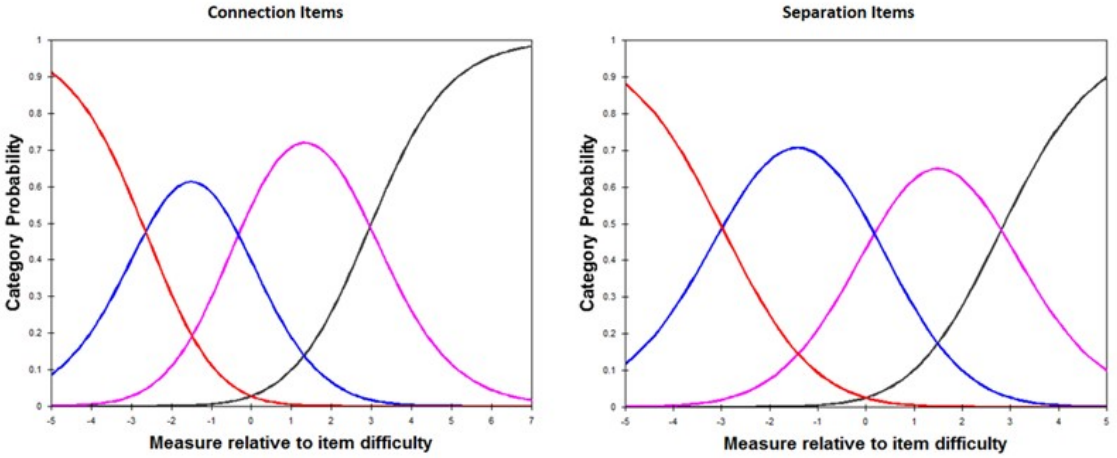

Figure 3. Category Probabilities for Four-Point Level of Agreement
Note. Red represents "strongly disagree," blue represents "disagree," pink represents "agree," and black represents "strongly agree."

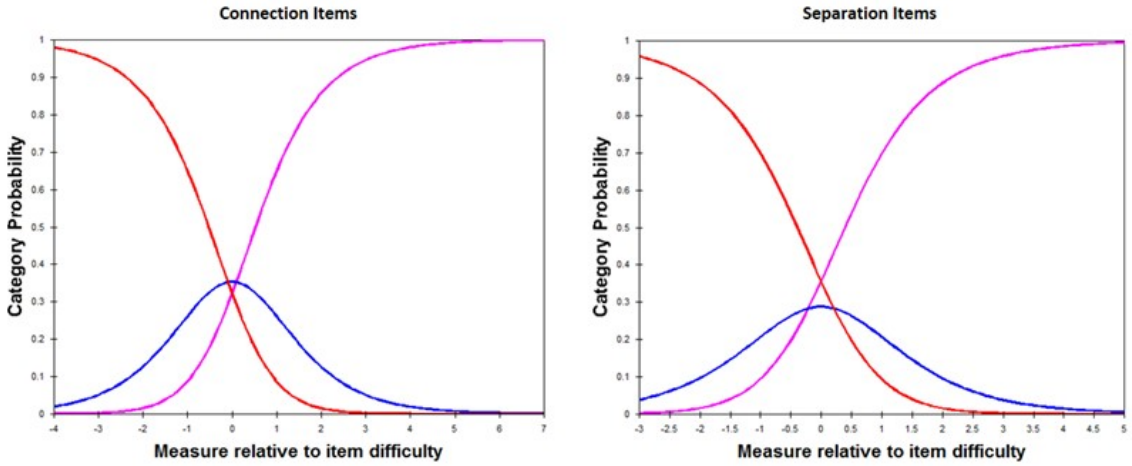

Figure 4. Category Probabilities for Three-Point Level of Agreement
Note. Red represents "strongly disagree" and "disagree" combined, blue represents "neither agree nor disagree," and pink represents "agree" and "strongly agree" combined.

Participant Feedback

Items and the overall survey format were also modified based on feedback from survey participants. This feedback came from a blank text-box at the bottom of each page in which survey participants could respond. Much of the feedback given by participants had to do with the clarity of global mobility items, and suggestions for how to make the item better. This feedback was used to revise global mobility items. There was also feedback about demographic items, and these were revised accordingly. Other feedback indicated that the format of the Familiarity items was not ideal. Items for International, Domestic, and Regional Familiarity had been grouped by question stem, instead of separated by scale (e.g. the question stem "I have cooked food in…" would be followed by questions about the number of countries, number of states, provinces or regions, and number of cities or towns). Respondents felt that this made the survey more

cognitively taxing because of the need to jump between thinking about international, domestic, and regional experiences. In response to this feedback, the questions were reorganized so that items within each scale (International Familiarity, Domestic Familiarity, and Regional Familiarity) were grouped together. A few items were judged to be unclear by the author during the revision process, and were clarified or rewritten accordingly.

Additionally, there was specific feedback about the validity items having to do with cross-cultural relationships. The prompt used in the pilot test included this wording "Some people consider romance with someone from a different race…" and one of the question stems asked about willingness to "live with someone not of your own culture." Feedback indicated that the wording "race" in the prompt clashed with the wording "culture" in the item stems, so the prompt was modified to reflect culture. Feedback further indicated that the current combination of the prompt asking about romance and the stem asking about living together forced self-identified Christian respondents to answer that they were not willing, but for moral convictions rather than cultural or racial views. Others responded that they would not be willing because they were already married. There were similar concerns about the set of validity items about working in other countries for those who were already near the end of their careers or retired. This led to a reconsideration of these validity items. The prompt for this set of items was modified to include all kinds of relationships instead of romance ("Some people are open to relationships with people from different cultures…") and two question stems were replaced. Specifically, the previous four question stems about willingness to "date,"

"live with," "marry," and "have a child" "with someone not of your own culture" were modified to willingness to "befriend," "live with (e.g. roommate)," "date," and "marry." Additionally, instructions were added to the prompt telling participants to answer as if they were young and single for both the relationship validity items and work validity items. These changes were made in hopes that items would better assess willingness to relate to people from other cultures in ways that would not be affected by a respondent's moral beliefs or age.

Data Collection Results

Structural Validity Evidence

Exploratory principal components analysis revealed the same five component structure as the results from the pilot test. Principal components analysis was chosen because it assumes no measurement error and orthogonal components, which aligns with the specification of local independence in Rasch analysis. Principal components analysis with a varimax rotation and Kaiser normalization were run, extracting one, three, five, and seven factors, according to the possible scale configurations for the model. Results from the principal components analysis most closely fit the hypothesized groupings of items (as seen in Table 3). The variance accounted for with five factors extracted is 41.58 percent and the rotations converged in seven iterations. Only eight (3.4 percent) of 229 global mobility items appear on factors not matching what was hypothesized, and most of the misplaced items were Separation items. See Appendix F for the rotated component matrix from this principal components analysis.

A cross-validation was run in SPSS to ensure the quality of the data. The principal components results were similar for each random half of the data, and both were similar to the principal components with all the data. This indicates that the data is more likely to be generalizable to other samples.

Content Validity Evidence

Statistics on item fit based on the Rasch analysis of each scale separately appear in the bottom half of Table 4. For each scale, the number of misfitting items is given according to outfit mean-square statistics that are outside the range of 0.6 to 1.3, and the total number of items on each scale is given near the top of the table. Out of 229 total items, there were 40 misfitting items. Additionally, misfitting items are evaluated by the outfit standardized statistic (ZSTD) that are outside the absolute value of 2.00 and -2.00. There were 144 such misfitting items according to the outfit standardized statistic. Table 4 also shows the number of responses that were able to be estimated in a Rasch model for each scale, with 875 people estimated for the International Familiarity items, which appeared first in the survey, and 629 people estimated for the Separation items, which appeared last in the survey. Overall, results are promising once misfitting items are eliminated.

	International	Domestic	Regional	Connection	Separation
Items included	1-61	62-104	105-141	142-185	186-229
Number of items	61	43	37	44	44
Item Mean	0.45	0.21	0.29	-1.07	-0.01
Item Max	3.09	1.67	1.55	0.73	1.24
Item Min	-0.92	-0.76	-0.64	-2.05	-1.02
Item SD	0.72	0.50	0.44	0.57	0.50
Misfit Outfit MSQ >1.3 or <.6	12	11	8	3	6
Outfit MSQ Max	1.97	1.82	2.12	1.53	1.74
OutfitMSQ Min	0.59	0.56	0.54	0.65	0.64
Misfit lOutfit ZSTDI > 2	33	32	27	23	29
Outfit ZSTD Max	8.74	9.90	9.90	8.51	9.90
Outfit ZSTD Min	-8.26	-8.66	-7.89	-6.47	-7.60
Measured N (out of 918 possible responses)	875	747	659	641	629

Table 4. Quality Index for 229 Items

Substantive Validity Evidence

Evidence for substantive validity has to do with the reflection of theoretical rationales observed in consistencies in test responses (Messick, 1995). One way of examining substantive validity is by inspecting the means and distributions (means and ranges appear in Table 4) of item measure scores (from Rasch analysis, measured in logits) for each scale. These relative difficulties of scales can be plotted to show scale hierarchy (see Figure 5). The scales show overlap, with Connection extending lower than most and International Familiarity extending higher than most. This means that there are some differences between scales (as the means increase) providing fuller coverage of the overall concept of global mobility. A great amount of overlap can indicate that these concepts all provide similar coverage of the concept of global mobility, however, each scale addresses a dimension or sub-dimension of global

mobility that is an important independent variable on its own, so it would still be useful despite overlap on the overall construct of global mobility.

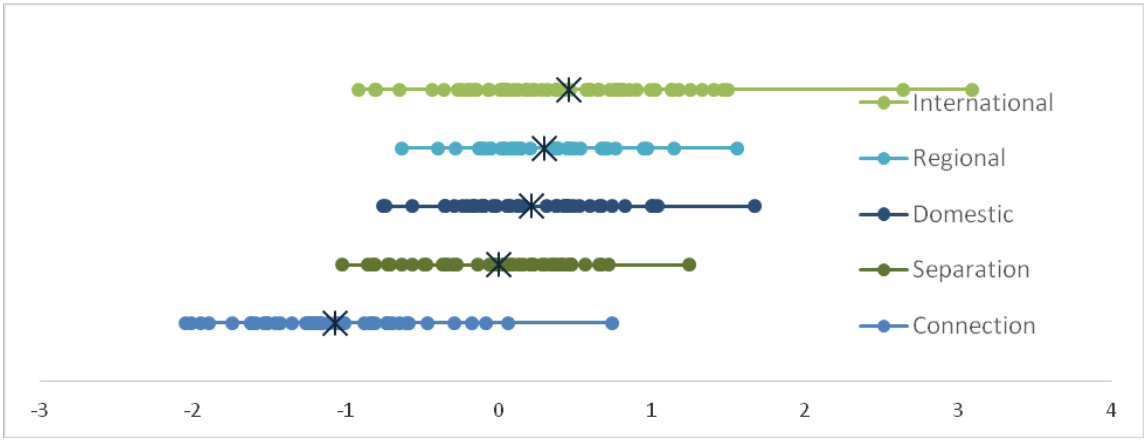

Figure 5. Scale Hierarchy for 229 Items

Table 5 contains coefficient alpha (also referred to as Cronbach's alpha) person raw score "test" reliabilities (on the diagonal) and the intertrait correlations for each scale (off-diagonal entries). All the reliabilities appear high, ranging from 0.91 to 0.98 (1 is the maximum possible reliability, above 0.90 is considered "excellent"). All scales are significantly correlated except for Regional Familiarity and Separation. The Domestic and Regional Familiarity scales show the highest correlation among scales (0.49). The next highest correlations are the International Familiarity scale with the Separation (0.38) and Connection (0.36) scales. These results confirm expectations about which scales are most and least related. Additionally, Figure 6 shows how the Familiarity correlations with Connection and Separation decrease as the scope becomes

smaller. This matches the hypothesis that those who experience a greater scope of familiarity also experience more connection and separation.

	International	Domestic	Regional	Connection	Separation
International	0.98				
Domestic	0.26**	0.98			
Regional	0.12**	0.49**	0.98		
Connection	0.36**	0.22**	0.18**	0.96	
Separation	0.38**	0.13**	-0.03	0.08*	0.91
Cronbach Alpha (KR-20) person raw score "test" reliability given by Winsteps on diagonal					
**. Correlation is significant at the 0.01 level (1-tailed).					
*. Correlation is significant at the 0.05 level (1-tailed).					

Table 5. Intertrait Correlations and Subscale Reliabilities for 229 Items

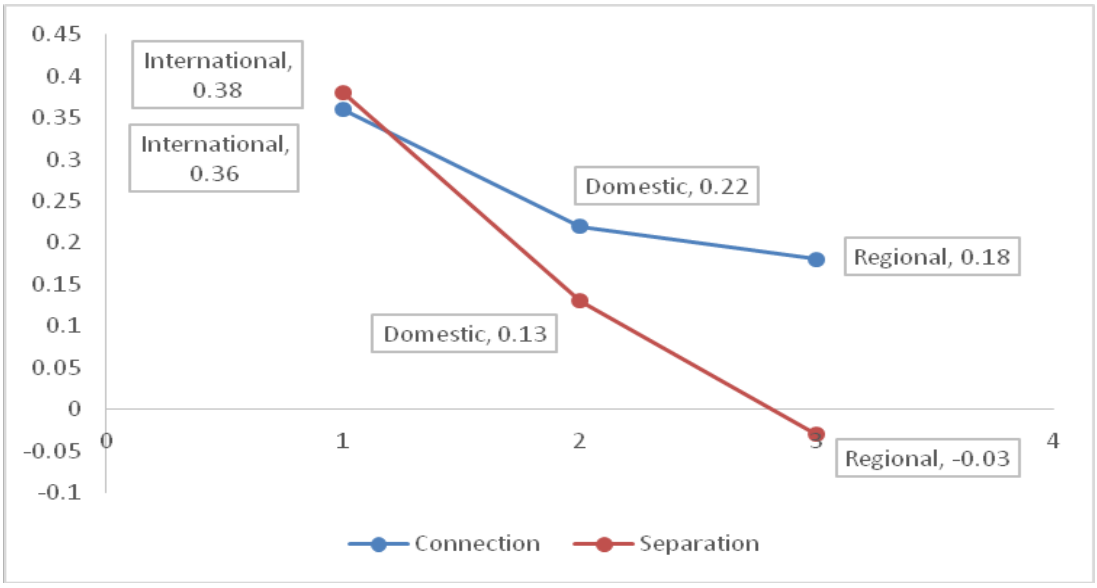

Figure 6. Familiarity Correlations with Connection and Separation for 229 Items

Linacre (2002) gives eight guidelines for optimizing rating scales using Rasch analysis. His guidelines are shown in Table 6, along with the role these guidelines play

in establishing measure stability, measure accuracy, description of the sample, and inference for the next sample. A comparison of the rating scale results for each scale with these guidelines appears in Table 7. Linacre's first guideline is that each scale has at least 10 observations of each rating scale category. As shown in Table 7, each scale

Guideline	Measure Stability	Measure Accuracy (Fit)	Description of this sample	Inference for next sample
Pre. Scale oriented with latent variable	Essential	Essential	Essential	Essential
1. At least 10 observations of each category.	Essential	Helpful		Helpful
2. Regular observation distribution.	Helpful			Helpful
3. Average measures advance monotonically with category.	Helpful	Essential	Essential	Essential
4. OUTFIT mean-squares less than 2.0.	Helpful	Essential	Helpful	Helpful
5. Step calibrations advance.				Helpful
6. Ratings imply measures, and measures imply ratings.		Helpful		Helpful
7. Step difficulties advance by at least 1.4 logits.				Helpful
8. Step difficulties advance by less than 5.0 logits.	Helpful			

Table 6. Linacre's Guidelines for Rating Scale Evaluation (Linacre, 2002)

has one or more items that do not have at least 10 observations for each rating scale category. For example, on some of the International Familiarity items, no one chose the rating scale category "many more" as their response. (Appendix G shows the items that are problematic in this way as well as the response categories that are problematic.) The International Familiarity scale has the most items with less than ten observations in some response categories, followed by the Connection scale, while the other scales each have only one item problematic in this way.

Linacre's second guideline is that scales have a distribution of responses that is unimodal. All the scales have satisfactory distributions; the Familiarity scales show a response pattern with larger percentages of responses appearing on the lower response categories (i.e. "much fewer" and "slightly fewer"), while the Connection and Separation scales show a response pattern that peaks in the middle (i.e. "disagree" and "agree"). Linacre's third guideline is that the average measures increase for response categories on each item. This means that as response categories increase (scored one to four or one to five), the average measures also increase, and higher response categories reflect higher levels of the latent variable trait. The International Familiarity and Separation scales have some items that are problematic because the average measures do not increase with each response category. Linacre's fourth guideline is that the outfit MNSQ is less than two for each category. All scales have outfit MNSQ less than two

	International	Domestic	Regional	Connection	Separation
At least 10 observations	x	x	x	x	x
Unimodal	✓	✓	✓	✓	✓
Average measures increase	x	✓	✓	✓	x
Outfit MNSQ<2 for each category	✓	✓	✓	✓	✓
Taos increase	✓	✓	x	✓	✓
Measures imply categories	x	x	x	✓	✓
Categories imply measures	x	x	x	x	x
Taos distance appropriate	x	x	x	✓	✓

Notes: Checkmarks indicate the guideline was met and x's indicate the guideline was not met

Table 7. Linacre's Criteria Applied to 229 Items

for each category. Linacre's sixth guideline is that measures imply ratings and ratings imply measures, and percentages above 40 percent are thought to indicate this. For Familiarity scales the measures do not imply the ratings for some response categories, and for all scales the ratings do not imply the measures for some response categories.

Linacre's (2002) fifth, seventh, and eighth guidelines refer to taos. Taos are thresholds between response categories, demarcating at what measure score a certain response category becomes most likely. In Figure 7, below, curves appear in different colors for each response category (i.e. red is the first response category, blue is the second, pink the third, black the fourth, and green the fifth). Taos are the measure scores (point on x-axis) at which curves cross.

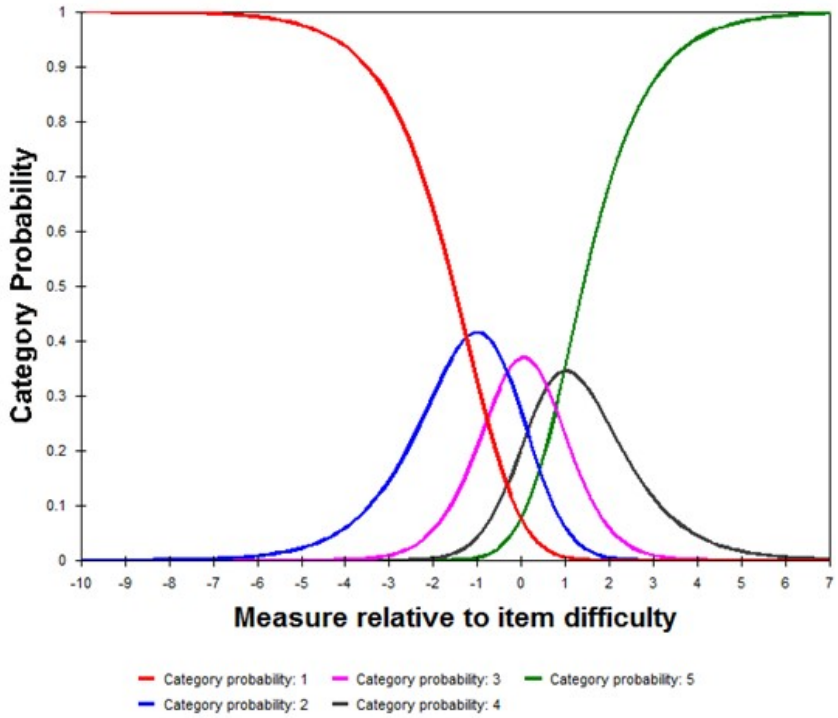

Figure 7. Category Probabilities for International Familiarity Scale for 229 Items

Linacre's fifth guideline is that the taos must increase for each response category on a scale. Figure 7 is an example of how the curves should look for each subscale, with a visual peak appearing for each response category. (Category probability curves can be seen for each scale in Appendix H.) The taos increase with each category on all the scales except for Regional Familiarity. Linacre's seventh and eighth guidelines are that taos are not too close together and not too far apart. For rating scales with five categories, taos should be at least 1.0 logits apart, and for rating scales with four categories, taos should be at least 1.4 logits apart, and fewer than 5.0 logits apart. No taos for any scale are close to the upper bound of 5.0. The distance between taos is below 1.0 for all the Familiarity scales, except for the distance between taos bounding the third response category on the Domestic and Regional Familiarity scales (which were above 1.0). Taos were an appropriate distance apart for the Connection and Separation scales. Fulfillment of these guidelines are helpful but not essential for measure stability, measure accuracy, description of the sample, and inference for the next sample.

External Validity Evidence

Correlations between the Rasch person measure scores for each scale and the Rasch person measure scores for each set of convergent validity items is shown in Table 8. The first set of items for convergent validity is comprised of demographic items. It includes DEM22 and DEM23 (shown in Appendix A), which ask participants about the length of time spent in the three countries they have lived in the longest, and the number of countries traveled to for any length of time. The Pearson correlations show that this

set of items is significantly related to every scale of global mobility at the 0.01 level, indicating good external validity.

The second set of items is the Think items. These items asked, "What do you think?" about scenarios involving participants willingness to have relationships with people from other cultures, or work abroad in a country not previously experienced (these items also appear in Appendix A). They had response options of "it's not a good idea," "I would not but it's okay for others," "I would do this," and "I would do this with any culture/country. This set of items was significantly correlated at the 0.01 level with the International Familiarity, Domestic Familiarity, and Connection scales, and was significantly correlated at the 0.05 level with the Regional Familiarity scale. Against expectations there was no significant correlation with the Separation scale.

	International	Domestic	Regional	Connection	Separation
Demographic Items	0.58**	0.21**	0.10**	0.15**	0.25**
Think Items	0.29**	0.13**	0.08*	0.23**	0.04
Done Items	0.59**	0.23**	0.13**	0.26**	0.26**
Think + Done Items	0.54**	0.24**	0.15**	0.29**	0.20**

**. Correlation is significant at the 0.01 level (1-tailed).

*. Correlation is significant at the 0.05 level (1-tailed).

Table 8. Correlations for Convergent Validity for 229 Items

The third set of items is the Done items. These items asked "Have you done this?" and gave response options of "I have done this but I regret it," "I have not done this," "I have done this," and "I have done this and would do it again." This set of items was significantly correlated at the 0.01 level with all scales of global mobility.

The fourth set of items includes both the Think items and the Done items. A score for each person was generated based on analyzing these items together with a Rasch model using Winsteps. This set of items was also significantly correlated at the 0.01 level with all scales of global mobility. Overall, these results indicate good convergent validity.

Figure 8 shows a graph of the correlations between each scale and each set of items used to establish convergent validity. Compared to the other scales, International Familiarity has the strongest convergent validity. Compared to the other item sets, Think items provide the least evidence for convergent validity.

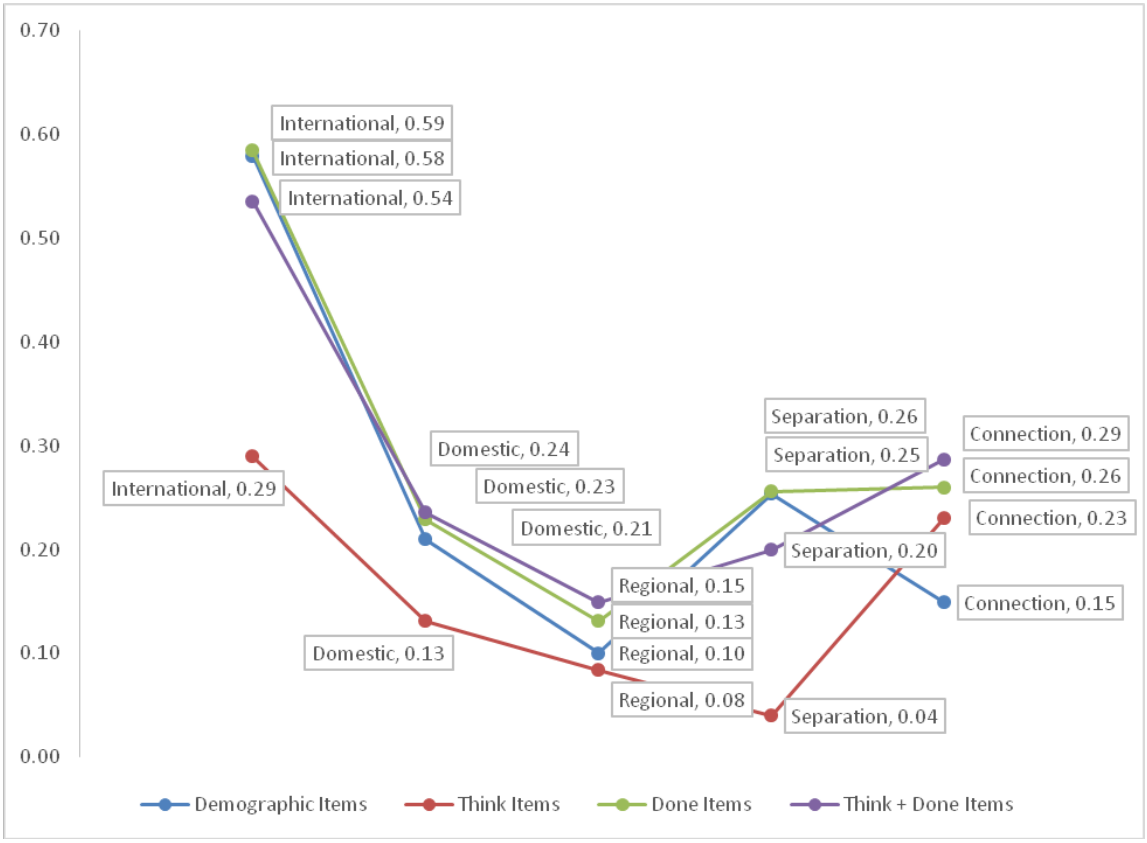

Figure 8. Scale Correlations with Selected External Criteria for 229 Items

Additional Analyses

In addition to the analyses done to find evidence for validity, independent sample t-tests were run to check for variation among subsamples of participants. In particular, variation was examined according to age, gender, ethnicity, and native language. The t-test for gender showed a significant difference between male and female groups on the Regional Familiarity scale; $t(324.39) = -2.59$, $p = 0.01$. Females (M = -0.75, SD = 1.53) scored higher than males (M = -1.15, SD = 1.89). This indicates that it is easier for women than men to endorse the items on the Regional Familiarity scale. The t-tests for age, ethnicity, and native language did not have significant results.

Results for 31-Item Measure of Global Mobility

Structural Validity Evidence

Through exploratory principal components analysis the 31 items chosen for the Measure of Global Mobility also exhibited a five factor structure. With a five factor structure, all items clustered in the appropriate scales in the rotated component matrix. All items had loadings above 0.3 in the rotated component matrix, and 49.5 percent of the variance was explained by the five extracted components. The rotated component matrix can be seen in Appendix I.

Content Validity Evidence

Unidimensional Rasch analysis was used to obtain item fit statistics for the shortened measure, which appear in the bottom half of Table 9. Out of all 31 items, there were no misfitting items according to the outfit mean-square statistic (MNSQ) and

the outfit standardized statistic (ZSTD). Item fit shows excellent evidence for content validity.

	International	Domestic	Regional	Connection	Separation
Items included	1-6	7-11	12-18	19-24	25-31
Number of items	6	5	7	6	7
Item Mean	0.15	0.42	-0.03	-0.50	0.03
Item Max	0.98	1.04	1.16	-0.04	0.53
Item Min	-1.16	-0.22	-1.11	-0.91	-0.50
Item SD	0.75	0.45	0.71	0.28	0.33
Misfit OUT.MSQ >1.3 or <.6	0	0	0	0	0
Outfit MNSQ Max	1.09	1.14	1.09	1.08	1.04
Outfit MNSQ Min	0.91	0.87	0.88	0.95	0.92
Misfit IOutfit ZSTDI > 2	0	0	0	0	0
Outfit ZSTD Max	1.31	1.72	1.43	1.44	0.74
Outfit ZSTD Min	-1.67	-1.90	-1.62	-0.94	-1.41
Measured N (out of 918 possible responses)	875	742	659	641	628

Table 9. Quality Index for 31 Items

Substantive Validity Evidence

The results from comparing the means and distributions of item measure scores from a Rasch analysis of all scales together again shows overlap for the shortened measure (see scale hierarchy plot in Figure 9). Connection remains the lowest mean, which affirms its place as the most subjective scale. The other scales have shuffled their order, with Domestic Familiarity now at the top of the hierarchy followed by International Familiarity, Separation, and then Regional Familiarity. It is surprising that Domestic Familiarity is now at the top of the hierarchy, but the others fall in a satisfactory order.

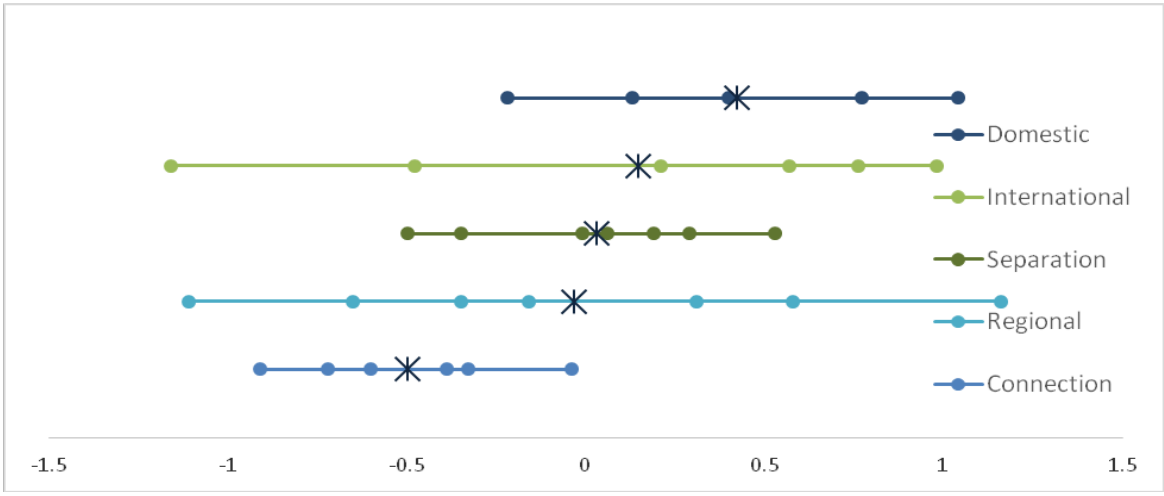

Figure 9. Scale Hierarchy for 31 Items

The reliabilities and intertrait correlations for the 31-item measure can be seen in Table 10. The coefficient alpha person raw score "test" reliabilities (from Rasch analysis) are lower but still in a "good" range (0.8 to 0.9) and an "acceptable" range (0.7 to 0.8). The highest correlation is still between Domestic and Regional Familiarity scales (0.37). The next highest correlations are still the International Familiarity with the Connection (0.28) and Separation (0.28) scales. Again, the lowest correlation is between Regional Familiarity and Separation. The results for the 31 items confirm expectations about which scales should be most related.

	International	Domestic	Regional	Connection	Separation
International	0.87				
Domestic	0.22**	0.87			
Regional	0.08*	0.37**	0.89		
Connection	0.28**	0.06	0.14**	0.81	
Separation	0.28**	0.24**	0.00	0.08*	0.71
Cronbach Alpha (KR-20) person raw score "test" reliability given by Winsteps on diagonal					
**. Correlation is significant at the 0.01 level (1-tailed).					
*. Correlation is significant at the 0.05 level (1-tailed).					

Table 10. Intertrait Correlations and Subscale Reliabilities for 31 Items

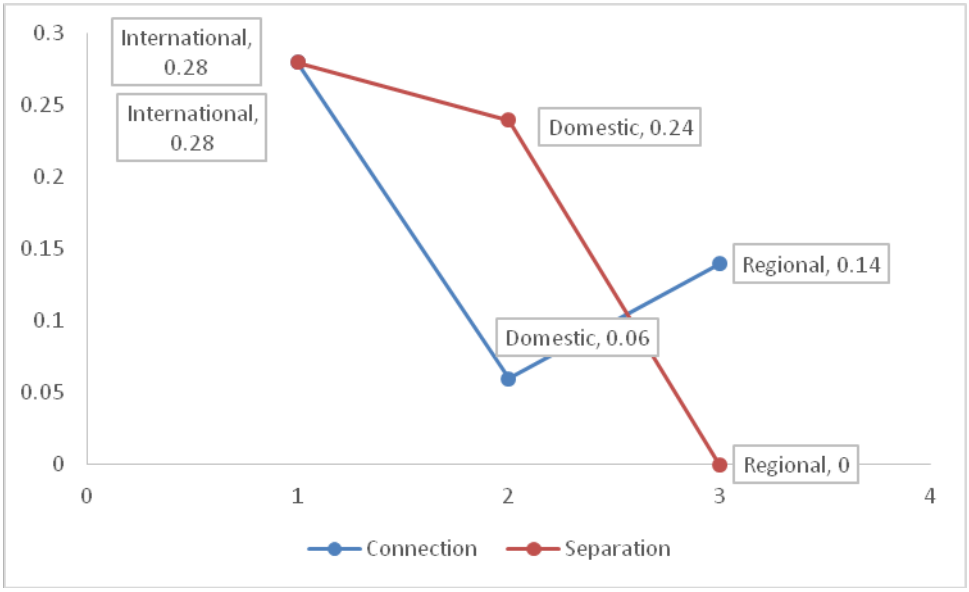

Figure 10. Familiarity Correlations with Connection and Separation for 31 Items

Figure 10 shows the correlations between the three Familiarity scales and Connection and Separation. The results match the earlier pattern of decreasing correlations with Connection and Separation as the scope of Familiarity shrinks except for the Domestic Familiarity scale, which is lower in its correlation with Connection.

Results from evaluation of the rating scales are better for the shortened measure than the original 229 items (see Table 11). There are no longer any items with fewer than 10 observations, which is essential for measure stability and helpful for measure accuracy and inference for the next sample (predicting for future samples which measure scores will align with which response categories). Each scale remains unimodal, and shows the same patterns in response distributions, with responses skewed towards the lower response categories for Familiarity scales, and responses peaking in the middle for Connection and Separation scales. All the average measures and taos increase for response categories on the 31 items included. All scales have outfit mean squares above two for each category. The taos increased for each scale except for Regional Familiarity.

	International	Domestic	Regional	Connection	Separation
At least 10 observations	✓	✓	✓	✓	✓
Unimodal	✓	✓	✓	✓	✓
Average measures increase	✓	✓	✓	✓	✓
Outfit MNSQ<2 for each category	✓	✓	✓	✓	✓
Taos increase	✓	✓	x	✓	✓
Measures imply categories	x	✓	x	✓	✓
Categories imply measures	x	x	✓	x	x
Taos distance appropriate	x	x	x	✓	✓
Notes: Checkmarks indicate the guideline was met and x's indicate the guideline was not met					

Table 11. Linacre's Criteria Applied to 31 Items

The measures imply ratings for the Connection, Separation, and Domestic Familiarity scales, but not for the other Familiarity scales. The ratings imply measures

for the Regional Familiarity scale, but none of the other scales. The distance between taos is adequate (above 1.0) for the differences between the first three taos, but the distance between the taos bounding the fourth response category remains below 1.0 for the Familiarity scales. Taos remain appropriate (between 1.4 and 5.0 for scales with only four response categories) for the Connection and Separation scales. According to Linacre (2002), the areas in which the shortened measure does not adhere to his guidelines are only in cases in which adherence would be "helpful" but not "essential," for measure accuracy and inference for the next sample.

External Validity Evidence

Correlations for convergent validity were again calculated by correlating the person measure scores of selected criteria with person measure scores from each scale of global mobility (seen in Table 12). Correlations for the set of demographic items (comprised of DEM22 and DEM23) were again all significant at the 0.01 level.

	International	Domestic	Regional	Connection	Separation
Demographic Items	0.59**	0.21**	0.11**	0.12**	0.22**
Think Items	0.27**	0.10**	0.067	0.21**	0.04
Done Items	0.55**	0.21**	0.12**	0.23**	0.22**
Think + Done Items	0.51**	0.21**	0.13**	0.24**	0.19**
**. Correlation is significant at the 0.01 level (1-tailed).					
*. Correlation is significant at the 0.05 level (1-tailed).					

Table 12. Correlations for Convergent Validity for 31 Items

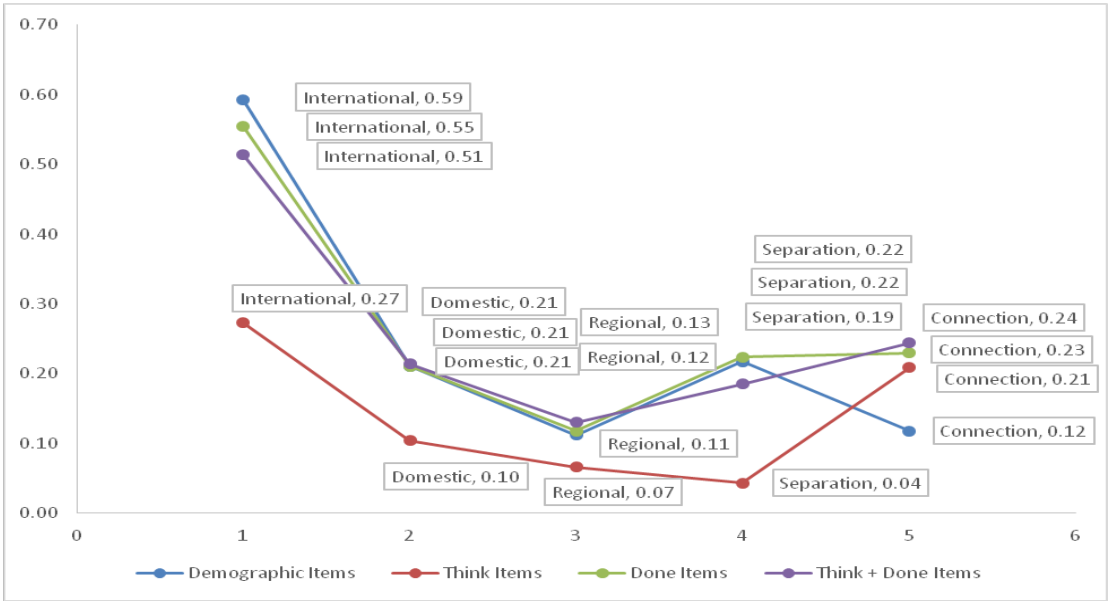

Figure 11. Scale Correlations with Selected External Criteria for 31 Items

Correlations for the set of Think items were significant, at the 0.0l level, for International Familiarity, Domestic Familiarity, and Connection, but not significant for Regional Familiarity or Separation. Correlations for Done items were again all significant at the 0.01 level, as were correlations for Think and Done items combined. These results indicate excellent convergent validity. Figure 11 shows the correlations of each scale with each set of convergent validity items. Once again International Familiarity has the strongest convergent validity and the Think items provide the least evidence for convergent validity. Additionally, Figure 11 shows that the results for convergent validity for the 31-item measure match the results from the original set of 229 items.

Additional Analyses

The independent sample t-tests used to test for group differences again revealed significant gender differences between males and females on the Regional

Familiarity scale. The t-test revealed that Females (M = -0.63, SD = 1.64) scored higher than males (M = -1.02, SD = 1.89); $t(344.97) = -2.54$, $p = 0.01$. . If translated to a raw score, the mean score for females is about two points higher than for males. This indicates that some of the items on the Regional Familiarity scale are more commonly endorsed by females than males.

DISCUSSION AND CONCLUSIONS

Validity Evidence

The results provide evidence that supports the validity of the 31-item Measure of Global Mobility. Structural evidence indicates that the items are appropriately divided into five scales. The clustering of items produced by a five scale structure most closely matches the theoretical dimensions in the principal components analysis for the pilot test, the 229 original items, and the 31-item measure. This is strong evidence for the division of global mobility items into five scales reflecting the dimensions and sub-dimensions that were theorized: International Familiarity, Domestic Familiarity, Regional Familiarity, Connection, and Separation.

Content validity evidence also indicates that items are accurately assessing the latent variable for each scale. From the original 229 items, there were 40 that showed indication of poor fit according to the outfit mean-square statistic, and 144 according to the outfit standardized statistic, but zero poorly fitting items according to this statistic in the shortened measure, showing considerable improvement. Reliability scores were excellent (above 0.9) for the 229 items, and good (above 0.8) for the 31 items except for one which was still acceptable (above 0.7). This evidence indicates items are of good quality, and reliable on the Measure of Global Mobility.

Evidence for substantive validity ("the theoretical rationales for the observed consistencies in test responses"; Messick, 1995, p. 745) reveals an internal structure cohering with theoretical relationships between scales. The scale hierarchies show some

overlap between constructs. In some circumstances this overlap would be considered redundant, but because each scale measures an important and differing independent variable in research on global experiences, the overlap is acceptable. The Connection scale is at the bottom of the construct hierarchy, appropriate for a scale that contains more subjective items compared to the Familiarity scales. The order of the means for the other scales shuffles from the original 229 items and the 31-item measure, which is not surprising since the means are quite close together. The intertrait correlations accurately reflect which scales are most related, first the Domestic and Regional Familiarity scales, and next the International Familiarity scale with the Connection and Separation scales. Substantive validity evidence supports the validity of the Measure of Global Mobility.

The evaluation of rating scales shows improvement in the 31-item measure. Five of Linacre's (2002) eight guidelines for rating scales are met by the Measure of Global Mobility. All three guidelines that are not met are counted as helpful by Linacre, not essential: the taos do not increase for the Regional Familiarity scale, the response categories for the Familiarity scales do not have taos at least 1.0 logits apart, and all of the scales have some problems with measures implying ratings or ratings implying measures. The fulfillment of these guidelines is helpful for measure accuracy and inference for next sample, but not essential. Overall, the rating scale evaluation shows that the rating scales used for the Measure of Global Mobility are performing satisfactorily and do not require modification.

The evidence for the convergent aspect of external validity is excellent. All four sets and combinations of items for convergent validity have significant correlations with the scales of global mobility. The correlation with the set of demographic items implies that those who have spread their time across more countries and those who have been to more countries have higher scores on the scales of global mobility, showing that the Measure of Global Mobility succeeds in measuring latent traits related to individuals' actual experiences abroad. Similarly, the correlations with Think and Done items, separate or together, imply that individuals' cognitions and behaviors associated with having relationships with people from other cultures or traveling to work in a country not previously visited correlates with their scores on scales of global mobility. Additionally, just as individuals' cognitions do not always line up with their behaviors, so too there appears a discrepancy between Think item correlations and Done item correlations in that Regional Familiarity and Separation scales are not significantly correlated with the set of Think items. Overall, there is strong evidence for this aspect of external validity.

Study Limitations

One limitation of this study is the scope of this project. The Measure of Global Mobility (found in Appendix J) is currently usable by other researchers. However, the stability of item measure scores in Rasch analysis must be verified through another round of data collection with a different sample before a rubric for conversion of raw scores to measure scores can be established. Only measure scores will allow for accurate interpretation of results, because measure scores account for the varying

difficulty levels of items (as determined by Rasch analysis). Until then, items must be scored using Rasch analysis or be estimated (not to be counted as the true score) by the current conversion rubric (see Appendix K). Once item measure scores have stabilized through further data collection, a conversion rubric will be considered a reliable means of converting raw scores to measure scores. A conversion rubric would potentially allow participants to be given their score immediately following participation, as a way of encouraging their participation.

Additionally, the dimensions of global mobility may need to be refined or increased. The dimensions of age and agency are still missing. They were not included in the scope of this project, but are likely important considerations in assessing global mobility. The dimension of age would allow distinctions to be drawn regarding the ages at which global experiences take place. This has been an emphasis in the TCK literature, which only looks at moves occurring during the developmental years. The dimension of agency would allow distinctions to be drawn regarding the amount of choice individuals have in making their moves, as well as the suddenness of decisions to move. Agency plays a large part in the moves of refugees and victims of natural disaster, as well as children, who are not usually part of the decision-making process for moves during childhood. It may be wise to add to the dimensions of global mobility measured.

Moreover, the Connection and Separation dimensions in particular may need enhancement. Connection items were designed to ask about the current levels of identity attachment and desire for connection, but it may be more fitting to ask about the level of connection at the time individuals were in the host culture. Connection likely waxes and

wanes depending on the time lapsed from the experience and other reminders that come in and out of life. For example, one older person who took the survey gave feedback that now she feels content with her level of connection to distant past places, even though earlier in life she felt a strong need to stay connected to her past places. The way the Connection and Separation questions are now phrased, there is a difficulty present in that questions ask about multiple past places all at once, with no distinction between places, when in reality people may feel quite differently about one past place compared to another. No solution was found to this problem in the current research. It is hoped that others may find a solution in the future.

Implications for Future Research

The most immediate directions for future research stem from the limitations of this study. Another round of data collection with a different sample should be done to verify the stability of item measure scores in order to increase the ease of scoring the measure. Research should be done including dimensions that may need to be added to the measure, such as age and agency, or attempting to enhance the current dimensions, especially those of Connection and Separation. Additionally, gender differences on the Regional Familiarity scale should be examined and either the discriminating questions should be eliminated or a separate scoring rubric should be provided.

Ultimately, this measure was designed to be a research tool. Follow-up research should be done using the Measure of Global Mobility (scored with Rasch analysis or by estimate until a scoring rubric is available) as a way of quantifying global mobility in a sample and looking to see what dependent variables (such as those commonly studied in

TCK literature) are linked to high global mobility scale scores. Applications are anticipated in the field of TCK and expatriate research, as well as other fields, such as migration research, and potentially refugee research. Dependent variables that are thought to be related to a life spent in a variety of countries, or even a variety of places within one country or one region, should be tested using the Measure of Global Mobility as an independent variable as a way of learning more about when these dependent variables occur. For example, are people with higher global mobility scores more likely to be adaptable, or less likely to be prejudiced? Do people who have lived many places within one country experience some of the same outcomes as expatriates and TCKs? There are many questions worth exploring, and it is hoped that the Measure of Global Mobility will be a useful tool along the way.

The present study has succeeded in developing a measure of global mobility and providing evidence for the validity of the measure. This 31-item Measure of Global Mobility improves upon the current means of studying TCKs by providing a standard way to measure the core aspects underlying the TCK experience. Previously, researchers devised their own set of questions to score and use as an independent variable, but these questions were not derived in any systematic way or shown to be valid indicators of the core aspects underlying the TCK experience. In contrast, the present study has undertaken and systematic, comprehensive, and validated approach to developing items to measure global experiences. The 31-item Measure of Global Mobility provides an inclusive standardized way to measure the core aspects of experience underlying a global lifestyle.

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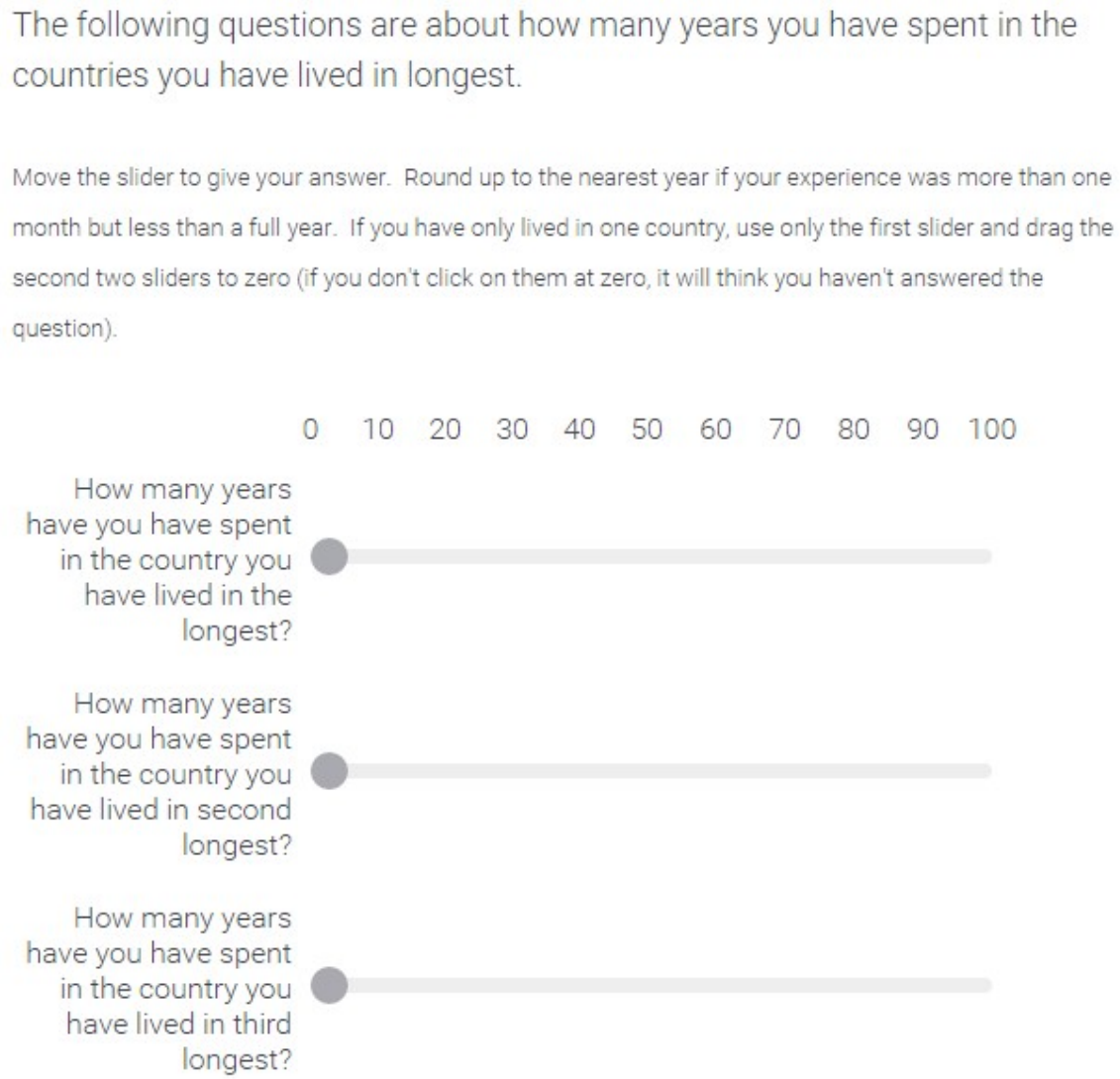
APPENDIX A

ITEMS FOR CONVERGENT VALIDITY

Images of items used for convergent validity appear below, taken from the online Qualtrics survey used for data collection.

Item DEM22 (Sliders could be moved to any whole number on the scale.)



Item DEM23 (Sliders could be moved to any whole number on the scale.)

Think and Done Items for Befriend, Live With, Date and Marry*

Some people are open to relationships with people from different cultures, and others prefer to "stick to their own kind." What do YOU think? **Answer as if you were young and single.** Please choose the statement that you agree most with for each behavior:

	What do you think?				Have you done this?			
	It's not a good idea	I would not, but it's okay for others	I would do this	I would do this with any culture	I have not done this	I have done this but I regret it	I have done this	I have done this and would do it again
Befriend someone not of your own culture	○	○	○	○	○	○	○	○
Live with (e.g. roommate) someone not of your own culture	○	○	○	○	○	○	○	○
Date someone not of your own culture	○	○	○	○	○	○	○	○
Marry someone not of your own culture	○	○	○	○	○	○	○	○

Think and Done Items for Trip, 6 Months, 2 Years, Long-term*

Some people consider taking a job in a culture or country they have not visited before. Others prefer to "stick to what they know." What do YOU think? **Answer as if you were young, with your career ahead of you.** Please choose the statement that you agree most with for each behavior:

	What do you think?				Have you done this?			
	It's not a good idea	I would not, but it's okay for others	I would do this	I would do this with any country	I have not done this	I have done this but I regret it	I have done this	I have done this and would do it again
Take a work-related trip to a country you have not visited previously	○	○	○	○	○	○	○	○
Work for 6 months in a country you have not visited previously	○	○	○	○	○	○	○	○
Work for two years in a country you have not visited previously	○	○	○	○	○	○	○	○
Work long-term (with no set end date) in a country you have not visited previously	○	○	○	○	○	○	○	○

*Note: Done items were scored so that "I have done this but I regret it" received a score of one, "I have not done this" received a score of two, "I have done this" received a score of three, and "I have done this and would do it again" received a score of four.

APPENDIX B

DESCRIPTIVE STATISTICS FOR CONVERGENT VALIDITY ITEMS

Below are the raw score descriptive statistics for the items used to provide convergent validity:

Descriptive Statistics for Demographic Items

	N	Minimum	Maximum	Mean	Std. Deviation
DEM22 First Longest Country	853	8	83	29.26	12.298
DEM22_Second Longest Country	853	0	36	6.04	6.924
DEM22_Third Longest Country	853	0	17	1.26	2.287
DEM23	861	0	30	11.75	8.418
Valid N (listwise)	799				

Descriptive Statistics for Think and Done Items			
	N	Mean	Std. Deviation
Think Befriend	621	3.71	0.536
Think Live With	621	3.35	0.675
Think Date	621	3.19	0.730
Think Marry	621	3.07	0.760
Done Befriend	621	3.82	0.460
Done Live With	621	3.10	0.934
Done Date	621	2.72	0.946
Done Marry	621	2.36	0.737
Think Trip	621	3.54	0.650
Think 6 Months	621	3.32	0.637
Think 2 Years	621	3.17	0.706
Think Long-term	621	2.91	0.831
Done Trip	621	3.04	0.976
Done 6 Months	621	2.67	0.929
Done 2 Years	621	2.50	0.849
Done Long-term	621	2.41	0.772
Valid N (listwise)	621		

Descriptive Statistics for Person Files (Used in Correlations)			
	N	Mean	Std. Deviation
International Person File	875	-1.122	1.699
Domestic Person File	742	-1.647	1.844
Regional Person File	659	-0.754	1.728
Connection Person File	641	1.238	1.521
Separation Person File	628	-0.060	1.062
Demographic Items Person File	908	-0.453	0.216
Think Items Person File	621	2.645	2.073
Done Items Person File	621	-0.126	0.864
Think + Done Items Person File	621	0.424	0.824

APPENDIX C

UNIDIMENSIONAL PRINCIPAL COMPONENTS ANALYSES

This appendix includes all the unidimensional principal components analyses (PCA) for the 229 items and the 31 items.

PCA for International Familiarity Items on 229-item version

Item	Loading
I have hosted a celebration in three countries.	0.82
I have been part of a community (of any kind) in three countries.	0.80
At one time I was familiar with the traffic patterns of a city or town in three countries.	0.80
I have adapted to living in three countries.	0.80
I have done a household chore (i.e. laundry, cleaning a bathroom, cleaning a floor) in five count...	0.78
I have shopped for groceries in five countries.	0.77
I have cooked food in five countries.	0.76
I have been part of a community of locals in three countries. The word "local" indicates someone...	0.74
I have regularly participated in a recreational activity or hobby with a group of people in three...	0.74
I have given and received help (e.g. a meal, childcare, or emotional support when needed) as part...	0.74
I have had a cell phone or phone line for my personal use in three countries.	0.73
I have deeply experienced the culture of three countries.	0.73
I have bought medicine in five countries.	0.72
I have had a leadership role in a community or social group (of any kind) in three countries.	0.72
I have felt comfortable at a work environment I was in for longer than six months in three countr...	0.72
I have been responsible for plants or a pet in three countries.	0.71
I have visited a school in five countries.	0.71
I (with my own finances) have paid rent (on a monthly basis) in three countries.	0.70
I have exchanged contact information with (or friended on social media) a local person in five co...	0.70
I have had official documents (e.g. passport, visa, residence document) issued to me by the gover...	0.70
I have given and received help (e.g. a meal, childcare, or emotional support when needed) as part...	0.70
I have visited a doctor in five countries.	0.70
I have eaten locally-prepared foods in five different countries that local people commonly eat in...	0.69
I have made arrangements for my own or someone else's education in three countries.	0.68
I have read a newspaper or watched news on TV that was only available locally in	0.68

five countries.	
I have had a leadership role in a community or social group comprised of mostly locals in three c...	0.68
I have had to adjust to changes in climate because of my time in three countries.	0.68
I have attended a meeting (e.g. conference, church service, class) meant to gather people like me...	0.68
I have attended at least one meeting of any kind of regularly-meeting group in five countries.	0.68
I can blend in culturally and know how to behave according to cultural norms in three countries.	0.67
I have been to a ticketed event (e.g. live performance, movie, fair) in five countries.	0.67
I have taught a class or workshop in three countries.	0.67
I have had a bank account in three countries that used different currencies.	0.66
I have witnessed in-person what it is like to live in five countries.	0.66
I have received pay for work in five countries.	0.66
I have taken someone else to a doctor's appointment in three countries.	0.66
Overall I feel that I have experience in five countries.	0.65
I have participated in outdoor recreation in five countries.	0.64
I have worked in a job with mostly local coworkers in three countries. The word "local" indicates...	0.64
I have used public transportation in five countries.	0.63
I have mailed or received a letter in five countries.	0.63
I have owned a vehicle or pass that carried a balance (for multiple uses) for public transportati...	0.62
I have purchased something in five different currencies.	0.62
I have gotten a promotion at a job I had in three countries.	0.61
I have been involved in extracurricular activities at schools in five countries.	0.60
I have driven a car in five countries.	0.60
I have participated in an organized competition in three countries.	0.58
I feel the influence on my values from the cultures of three countries.	0.58
I have done volunteer work in five countries.	0.56
I have participated in (played not watched) a sporting event in five countries.	0.55
I have enrolled in and attended schools in five countries.	0.54
I can have a 10-minute conversation with a stranger in three [living] languages.	0.52
I have had health insurance from (i.e. provided by an entity within that country) three countries.	0.50
I can read and understand a children's picture-book in three [living] languages.	0.50
I have been to a traditional celebration, wedding, or funeral in five countries.	0.46
I can speak fluently (expressing myself easily and accurately) to others in three [living] langua...	0.43
I have enrolled in and attended schools in three languages (the primary language you were taught...	0.41
I can read and understand a novel in three [living] languages.	0.41
I have visited a historical landmark or museum in five countries.	0.40
I have owned housing or land in three countries.	0.33
I have voted in a government election in three countries.	0.29

PCA for Domestic Familiarity Items on 229-item version

Item	Loading
I have been part of a community (of any kind) in three states, provinces, or regions within one c...	0.85
I have been part of a community of locals in three states, provinces, or regions within one count...	0.83
I have hosted a celebration in three states, provinces, or regions within one country.	0.82
I have adapted to living in three states, provinces, or regions within one country.	0.81
At one time I was familiar with the traffic patterns of a city or town in three states, provinces...	0.81
I have given and received help (e.g. a meal, childcare, or emotional support when needed) as part...	0.80
I have given and received help (e.g. a meal, childcare, or emotional support when needed) as part...	0.79
I have had a leadership role in a community or social group (of any kind) in three states, provin...	0.79
I have had a leadership role in a community or social group comprised of mostly locals in three s...	0.78
I have done a household chore (i.e. laundry, cleaning a bathroom, cleaning a floor) in five state...	0.77
I have felt comfortable at a work environment I was in for longer than six months in three states...	0.77
I (with my own finances) have paid rent (on a monthly basis) in three states, provinces, or regio...	0.77
I have had official documents (e.g. drivers license, voter registration, etc.) issued to me by th...	0.75
I have been responsible for plants or a pet in three states, provinces, or regions within one cou...	0.75
I have visited a doctor in five states, provinces, or regions within one country.	0.75
I have owned a vehicle, or a pass that carried a balance (for multiple uses) for public transport...	0.74
I have taken someone else to a doctor's appointment in three states, provinces, or regions within...	0.74
I have cooked food in five states, provinces, or regions within one country.	0.73
I have made arrangements for my own or someone else's education in three states, provinces, or re...	0.73
I have received pay for work in five states, provinces, or regions within one country.	0.72
I have mailed or received a letter in five states, provinces, or regions within one country.	0.72
I have shopped for groceries in five states, provinces, or regions within one country.	0.70
I have done volunteer work in five states, provinces, or regions within one country.	0.70
I have had to adjust to changes in climate because of my time in three states, provinces, or regi...	0.70
I have regularly participated in a recreational activity or hobby with a group of people in three...	0.69
I have visited a school in five states, provinces, or regions within one country.	0.68
I have gotten a promotion at a job I had in three states, provinces, or regions within one country.	0.68
I have voted in a government election in three states, provinces, or regions within one country.	0.68

I have attended a meeting (e.g. conference, church service, class) meant to gather people like me...	0.67
I have taught a class or workshop in three states, provinces, or regions within one country.	0.67
Overall I feel that I have experience in five states, provinces, or regions within one country.	0.67
I have attended at least one meeting of any kind of regularly-meeting group in five states, provi...	0.66
I have been involved in extracurricular activities at schools in five states, provinces, or regio...	0.64
I have enrolled in and attended schools in five states, provinces, or regions within one country.	0.64
I have witnessed in-person what it is like to live in five states, provinces, or regions within o...	0.61
I have exchanged contact information with (or friended on social media) a local person in five st...	0.60
I have participated in an organized competition in three states, provinces, or regions within one...	0.60
I have been to a ticketed event (e.g. live performance, movie, fair) in five states, provinces, o...	0.59
I have driven a car in five states, provinces, or regions within one country.	0.57
I have participated in outdoor recreation in five states, provinces, or regions within one country.	0.54
I have participated in (played not watched) a sporting event in five states, provinces, or region...	0.54
I have used public transportation in five states, provinces, or regions within one country.	0.51
I have owned housing or land in three states, provinces, or regions within one country.	0.45

PCA for Regional Familiarity Items on 229-item version

Item	Loading
I have been part of a community (of any kind) in three cities or towns within one state, province...	0.85
I have been part of a community of locals in three cities or towns within one state, province, or...	0.83
I have given and received help (e.g. a meal, childcare, or emotional support when needed) as part...	0.82
I have done a household chore (i.e. laundry, cleaning a bathroom, cleaning a floor) in five citie...	0.81
I have hosted a celebration in three cities or towns within one state, province, or region.	0.81
I have given and received help (e.g. a meal, childcare, or emotional support when needed) as part...	0.81
I have adapted to living in three cities or towns within one state, province, or region.	0.80
I have had a leadership role in a community or social group (of any kind) in three cities or town...	0.78
I have cooked food in five cities or towns within one state, province, or region.	0.78
I (with my own finances) have paid rent (on a monthly basis) in three cities or towns	0.78

within one...	
I have had a leadership role in a community or social group comprised of mostly locals in three c...	0.78
I have visited a doctor in five cities or towns within one state, province, or region.	0.77
I have taken someone else to a doctor's appointment in three cities or towns within one state, pr...	0.75
I have been responsible for plants or a pet in three cities or towns within one state, province,...	0.75
I have felt comfortable at a work environment I was in for longer than six months in three cities...	0.75
I have shopped for groceries in five cities or towns within one state, province, or region.	0.75
I have mailed or received a letter in five cities or towns within one state, province, or region.	0.74
I have received pay for work in five cities or towns within one state, province, or region.	0.74
I have done volunteer work in five cities or towns within one state, province, or region.	0.74
I have regularly participated in a recreational activity or hobby with a group of people in three...	0.73
I have gotten a promotion at a job I had in three cities or towns within one state, province, or...	0.72
I have voted in a government election in three cities or towns within one state, province, or reg...	0.70
Overall I feel that I have experience in five cities or towns within one state, province, or region.	0.70
I have taught a class or workshop in three cities or towns within one state, province, or region.	0.70
I have attended a meeting (e.g. conference, church service, class) meant to gather people like me...	0.70
I have made arrangements for my own or someone else's education in three cities or towns within o...	0.69
I have witnessed in-person what it is like to live in five cities or towns within one state, prov...	0.69
I have attended at least one meeting of any kind of regularly-meeting group in five cities or tow...	0.69
I have exchanged contact information with (or friended on social media) a local person in five ci...	0.68
I have visited a school in five cities or towns within one state, province, or region.	0.66
I have been to a ticketed event (e.g. live performance, movie, fair) in five cities or towns with...	0.65
I have participated in outdoor recreation in five cities or towns within one state, province, or...	0.65
I have enrolled in and attended schools in five cities or towns within one state, province, or re...	0.62
I have been involved in extracurricular activities at schools in five cities or towns within one...	0.62
I have participated in an organized competition in three cities or towns within one state, provin...	0.56
I have participated in (played not watched) a sporting event in five cities or towns within one s...	0.52
I have owned housing or land in three cities or towns within one state, province, or…	0.48

PCA for Connection Items on 229-item version

Item	Loading
I long to connect to cultures I've experienced before.	0.74
I miss being part of the cultures I have experienced before.	0.74
I seek out opportunities that remind me of experiences I had in another place.	0.69
I want to meet more people who have lived in one of the same places as I have.	0.68
Some smells make me wish to experience places again (because the smell reminds me of that place).	0.67
I am happy when I get a chance to use some of my cultural knowledge from another place.	0.65
The cultures of the places I used to live feel like part of me.	0.65
I often think about visiting the places I have been to before.	0.64
I wish I could still spend time with my friends from most of the other places I've lived.	0.64
I have positive feelings about the idea of living again in most of the places I have lived before.	0.64
Certain values of mine tie me to a community I was part of that was rooted in another place.	0.62
I long to be part of most of the communities I was once part of in other places.	0.62
I often think back to the food I ate in another place, wishing I could eat it now.	0.61
I would love to retrace the routes I used to regularly travel in another place.	0.61
I take pride in having many connections in the places I have lived before.	0.60
The places I have experienced are important to my identity.	0.59
I feel connected to strangers who are from any place I have lived before.	0.59
I feel that I am part of the cultures of places I have lived before.	0.58
The routes I used to take to get around town in other places feel like part of me.	0.57
I often think of friends I met in another place.	0.57
I feel excited when I hear others speak a language I have previously studied.	0.57
The geographic features of certain places feel like part of me.	0.56
I wish I could visit the physical spaces (e.g. house, apartment) I used to live in.	0.56
I long to experience the geographic features of another place again.	0.55
I have a sense of belonging to most of the places I used to live.	0.55
There are particular recreational activities or hobbies I did in another place that I long to do...	0.54
If a place I used to live in faced a natural disaster or other tragedy, I would feel that I was s...	0.53
I often think about how much I love the climate of another place I have spent time before.	0.53
I have considered going back to another place to do work that I miss doing.	0.51
I wish I could use the kind of transportation I used in another place.	0.51
I feel excited when I get the chance to speak a language I have previously learned.	0.50
I pride myself on being able to cook certain dishes from other places.	0.49
I wish I could have the involvement that I had in a previous community.	0.49
I feel happy when someone associates me with having been part of a community I used to be part of...	0.48
Recreational activities or hobbies that I primarily experience in a particular place are an impor...	0.47
I have felt "at-home" in most of the places I have lived before.	0.45

I am invested in the government of a place other than where I currently live.	0.44
Having worked in certain places is an important part of who I am.	0.43
I feel sad not to have current documentation from certain governments.	0.43
I like staying up to date about what is going on with most of the schools I attended.	0.42
I hang on to leftover (still usable) currencies from other places because I want to return there...	0.41
The languages I speak feel like part of my identity.	0.40
Most of the places I have worked are an important part of me.	0.40
I like it when I meet someone who attended one of the same schools as I did.	0.37

PCA for Separation Items on 229-item version

Item	Loading
It is feasible that in the next ten years I could visit most of the places I have lived before.	0.63
I will likely get to eat most of the foods I enjoyed from other places again.	0.62
I will likely continue to navigate most of the cities I have lived in previously.	0.61
Most forms of transportation that I used previously I will likely use again.	0.57
I will likely visit most of the cultures I once experienced again.	0.55
There are forms of transportation I used previously that I will likely never use again.	0.55
It would take a lot (e.g. time, money, planning, connections) to visit all the places I've lived...	0.54
I feel separated from the languages of most places I have lived.	0.54
I visit most of the cities I previously lived in.	0.54
I feel separated from most cultures I have experienced before.	0.52
I will likely revisit most of the communities I was once part of in other places.	0.51
I still get to eat most of the foods I enjoyed from other places.	0.50
There are foods I enjoyed from other places that I doubt I will have the chance to eat again.	0.49
I will likely use all of the [current versions of (e.g. Euro)] currencies again that I have used...	0.49
I will likely enjoy again most of the recreational activities or hobbies I used to enjoy in other...	0.49
I will likely see most of my friends from my young adulthood again.	0.47
I will likely never again possess documentation issued by all the governments I previously had do...	0.47
I no longer have a way of experiencing the cultures I was once part of.	0.47
Activities I enjoyed in most places I lived previously are still accessible for me (based on loca...	0.46
There are particular recreational activities or hobbies I primarily did in another place that I w...	0.46
Foods I enjoyed from most places I used to live are now difficult for me to access.	0.46
Activities I enjoyed in other places are no longer accessible for me (based on location, not abil...	0.43
I will likely see most of my friends from my teenage years again.	0.42
I feel disconnected from languages I previously had the opportunity to use regularly.	0.42
I could meet up with people I have known from most places I have lived.	0.42
I can access most communities that I have been part of in the past.	0.42

I learned specific ways of doing things in another environment, but have no opportunity to do thi...	0.42
I still use the nearly all the same kinds of transportation that I have used in the past.	0.41
In the future I will likely work in environments similar to those I have worked at in another place.	0.40
I will find some way to reconnect with cultures I have enjoyed in the past.	0.40
If I went back to the places I have lived, I have connections to someone I could stay with.	0.38
I will likely see most of my childhood friends again.	0.37
There were unique aspects of working in places I lived previously that are no longer accessible f...	0.37
My official documents from other countries are expired or terminated.	0.36
My communities are spread out all over the world.	0.34
I will likely reconnect with most of my previous schools in the future.	0.33
I had bank accounts in other countries that are now closed.	0.33
I have ongoing communication (e.g. dialogue of some kind via social media, email, phone, etc.) wi...	0.31
I still come in contact with speakers of the languages of places I lived before.	0.27
I doubt I will again interact with a native-speaker of languages I have conversed in before.	0.25
I stay connected with what is going on at most of my past schools.	0.20
I miss having access to the geographic features of most places I have lived previously.	0.16
I miss aspects of living in the climates of most places I have lived previously.	0.12
My communities are spread out all over a country.	0.07

PCA for International Familiarity Items on 31-item version

Item	Loading
I have visited a school in five countries.	0.74
I have been responsible for plants or a pet in three countries.	0.74
I have had a bank account in three countries that used different currencies.	0.73
Overall I feel that I have experience in five countries.	0.71
I have worked in a job with mostly local coworkers in three countries. The word "local" indicates...	0.70
I have used public transportation in five countries.	0.69

PCA for Domestic Familiarity Items on 31-item version

Item	Loading
I have voted in a government election in three states, provinces, or regions within one country.	0.81
I have taken someone else to a doctor's appointment in three states, provinces, or regions within...	0.82
I have owned a vehicle, or a pass that carried a balance (for multiple uses) for public transport...	0.80
I have enrolled in and attended schools in five states, provinces, or regions within one country.	0.72
I have mailed or received a letter in five states, provinces, or regions within one country.	0.74

PCA for Regional Familiarity Items on 31-item version

Item	Loading
I have had a leadership role in a community or social group comprised of mostly locals in three c...	0.75
I have regularly participated in a recreational activity or hobby with a group of people in three...	0.76
I have attended a meeting (e.g. conference, church service, class) meant to gather people like me...	0.77
I have exchanged contact information with (or friended on social media) a local person in five ci...	0.75
I have enrolled in and attended schools in five cities or towns within one state, province, or re...	0.65
I have visited a doctor in five cities or towns within one state, province, or region.	0.77
Overall I feel that I have experience in five cities or towns within one state, province, or region.	0.74

PCA for Connection Items on 31-item version

Item	Loading
I often think back to the food I ate in another place, wishing I could eat it now.	0.71
I wish I could visit the physical spaces (e.g. house, apartment) I used to live in.	0.68
I often think about how much I love the climate of another place I have spent time before.	0.66
I feel excited when I hear others speak a language I have previously studied.	0.63
I have considered going back to another place to do work that I miss doing.	0.63
Certain values of mine tie me to a community I was part of that was rooted in another place.	0.59

PCA for Separation Items on 31-item version

Item	Loading
If I went back to the places I have lived, I have connections to someone I could stay with.	0.45
It is feasible that in the next ten years I could visit most of the places I have lived before.	0.78
It would take a lot (e.g. time, money, planning, connections) to visit all the places I've lived...	0.62
I will likely reconnect with most of my previous schools in the future.	0.51
I will likely use all of the [current versions of (e.g. Euro)] currencies again that I have used...	0.56
There are particular recreational activities or hobbies I primarily did in another place that I w...	0.54
Activities I enjoyed in other places are no longer accessible for me (based on location, not abil...	0.39

APPENDIX D

WRIGHT MAPS

Below a Wright map (side-by-side mapping of persons and items) appears for each scale from the 229-item version and the 31-item version.

International Familiarity Wright Map for 229 Items

```
MEASURE    PERSON - MAP - ITEM
               <more>|<rare>
    5                +
                     |
                     |
                  .  |
                     |
    4                +
                     |
                     |
                     |  x3gov2
                     |
    3                +  x3res2
                     |
                     |
                     |
                     |
    2              .  +T
                     |
                   . T|  x3w2
                   .  |  x5ed2   x5ed3   xlan3
                  .#  |  x5w1
    1              #  +S x3med1  x5le3   xlan5
                .###  |  x3w3    xlan4
              .#####  |  x3com3  x3ed2   x3le3   x3med2  x3mo1   x3w1    x5med1
                      |  x5tr1
              .####   |  x3le2   x3res1  x5cul2
            .###### S|  x3com4  x5med2  x5w2    xlan1
    0       .######  +M x3com5  x3d2    x3ed1   x3tr1   x5ed1
          .########  |  x3com1  x5gov1  xlan2
          .########  |  x3com6  x3d3    x5com2  x5eat3  x5res1
       .###########  |  x3d1    x3ge1   x3gov1  x3le1   x3tr2   x5cul3  x5le2
      .############  |  x3com2  x3cul1  x5com1
   -1   .########## M+S x3cul2  x3cul3  x5com3  x5d1    xg1
         .#########  |  x5eat2
            .######  |  x5le1
          .########  |
            .######  |  x5tr2
   -2       .######  +T x5cul1  x5eat1
              .####  |  x5mo1
               .### S|
                .##  |
                 .#  |
   -3            .#  +
                 .#  |
                 .#  |
                  . T|
                 .#  |
   -4             .  +
                  .  |
```

```
                .  |
                .  |
                .  |
  -5              +
               .#  |
                   |
                   |
               .#  |
  -6           ##  +
             <less>|<frequent>
 EACH "#" IS 6: EACH "." IS 1 TO 5
```

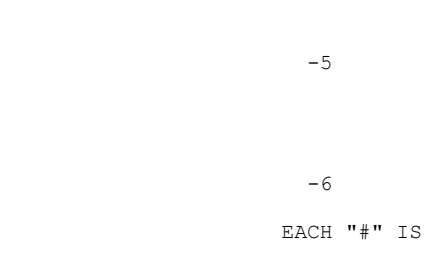
Domestic Familiarity Wright Map for 229 Items

```
MEASURE    PERSON - MAP - ITEM
             <more>|<rare>
    4           .  +
                   |
                   |
                   |
                   |
                   |
    3              +
                   |
                .  |
                .  |
                   |
                .  |  r3res2
    2           .  +
                .  |
                . T|
               .#  |T
                #  |
              .##  |  r3w2    r5ed2   r5ed3
    1         .##  +  r3gov2
              ###  |S r5w1
            .####  |  r3ed2   r5le3   r5med1
              ### S|  r3com3  r3med1
            .####  |  r3com4  r3ed1   r3gov1  r3le2   r3le3   r3res1  r3w1
                   |  r5w2
          .#####   |  r3tr1
    0    ########  +M r3d2
         .#######  |  r3com5  r3com6  r3ge1   r5ed1   r5gov1
      .###########  |  r3com1  r3le1
         .#######  |  r3com2  r3d1    r3tr2   r5com2  r5res1  rg1
          ####### M|  r5eat2  r5le2   r5tr2
         .#######  |S r5com1  r5d1    r5le1
  -1      .######  +
           .#####  |  r5eat1
           .#####  |
             ####  |T r5com3  r5tr1
            #####  |
               ## S|
  -2           ##  +
              .##  |
               .#  |
               ##  |
               .#  |
                #  |
  -3            ## T+
                .  |
                .  |
                   |
                   |
                .  |
  -4            .  +
                   |
```

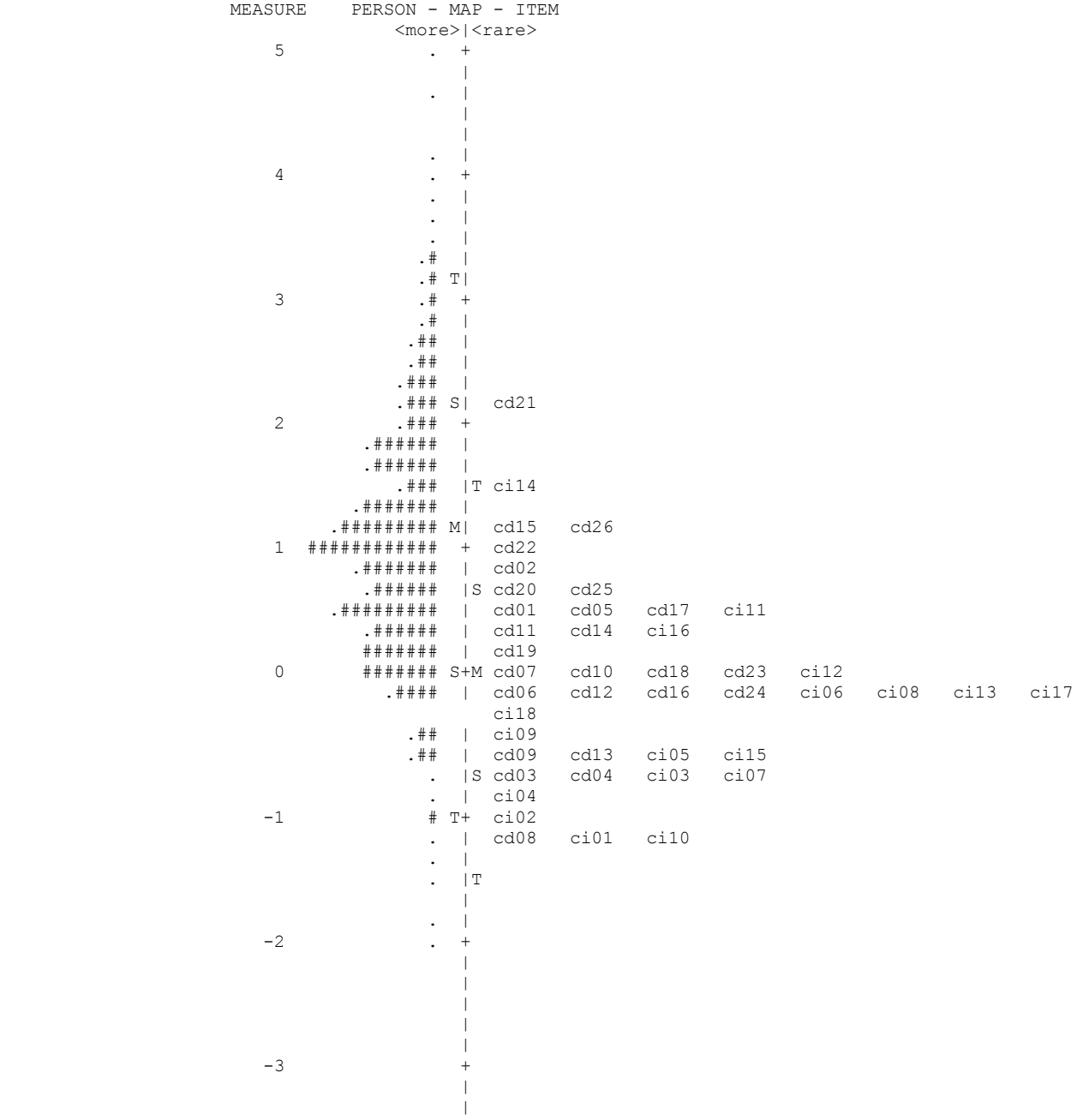
```
                    |
                  .  |
                     |
                     |
   -5                +
                 .#  |
                     |
                     |
                     |
                     |
   -6             .##  +
                 <less>|<frequent>
 EACH "#" IS 6: EACH "." IS 1 TO 5
```

Regional Familiarity Wright Map for 229 Items

```
MEASURE    PERSON - MAP - ITEM
               <more>|<rare>
    5             .  +
                     |
                  .  |
                     |
                     |
    4             .  +
                     |
                     |
                     |
                     |
    3                +
                  .  |
                  .  |
                  .  |
                     |
    2             .#  +  a3res2
                    T|
                  .#  |
                  .#  |T a5ed2
                 .##  |
    1             .#  +  a3w2    a5ed3
                .###  |  a3gov1
               ##### S|S a3ed2   a5med1  a5w1
                ####  |  a3med1  a3res1
           ########   |  a3com3  a3com4  a3ed1   a3le2   a3w1    a5gov1  a5le3
                      |  a5w2
    0       .#######  +M
          ##########  |  a3com5  a3d2    a3le3   a5res1
          .#########  |  a3com1  a3com6  a3d1    a5eat2  a5ed1   ag1
        .###########  |S a3com2  a3le1   a5com2  a5d1    a5le1   a5le2
          .######### M|
   -1      .########  +  a5com1
            .#######  |  a5eat1
               .####  |T
                .###  |  a5com3
               .####  |
   -2          .#### S+
                ####  |
                   .  |
                 ###  |
                  ##  |
   -3               .  +
                    . T|
                    .  |
                    .  |
                    #  |
   -4                  +
                       |
                  .#   |
```



Connection Wright Map for 229 Items



```
                    |
                    |
                    |
   -4             .  +
               <less>|<frequent>
 EACH "#" IS 5: EACH "." IS 1 TO 4
```

Separation Wright Map for 229 Items

```
MEASURE    PERSON - MAP - ITEM
               <more>|<rare>
    3                +
                     |
                     |
                     |
                     |
                     |
                  .  |
    2             .  +
                     |
                     |
                  .  |
                  .  |  sa18
                  .  |
                 .# T|T
    1            ##  +
                 .#  |
                .###  |  sa02rx  sa07rx  sc04rx
               .#### S|S sa11rx  sa15rx  sc20
               #####  |  sa06rx  sa08rx  sc05rx  sc06    sc17    sc19rx
          .#########  |  sa01rx  sa10    sa19    sa20rx  sc18
           .########  |  sa14    sa21rx  sc07
    0  .###########  +M sa05rx  sc01rx  sc09    sc10rx  sc11    sc21rx  sc22
           .####### M|  sa17rx
           ########  |  sa13rx  sc15rx
          .##########  |  sa16    sc08rx  sc16
           .#########  |S sa04rx  sc12rx  sc23
                .####  |  sa12rx  sc13    sc14
               ##### S|  sa03rx  sc02    sc03
   -1             ##  +
                  .#  |T sa09
                  .#  |
                  .# T|
                   .  |
                   #  |
                   .  |
   -2              .  +
                      |
                   .  |
                   .  |
                      |
                   .  |
                      |
   -3                 +
               <less>|<frequent>
 EACH "#" IS 6: EACH "." IS 1 TO 5
```

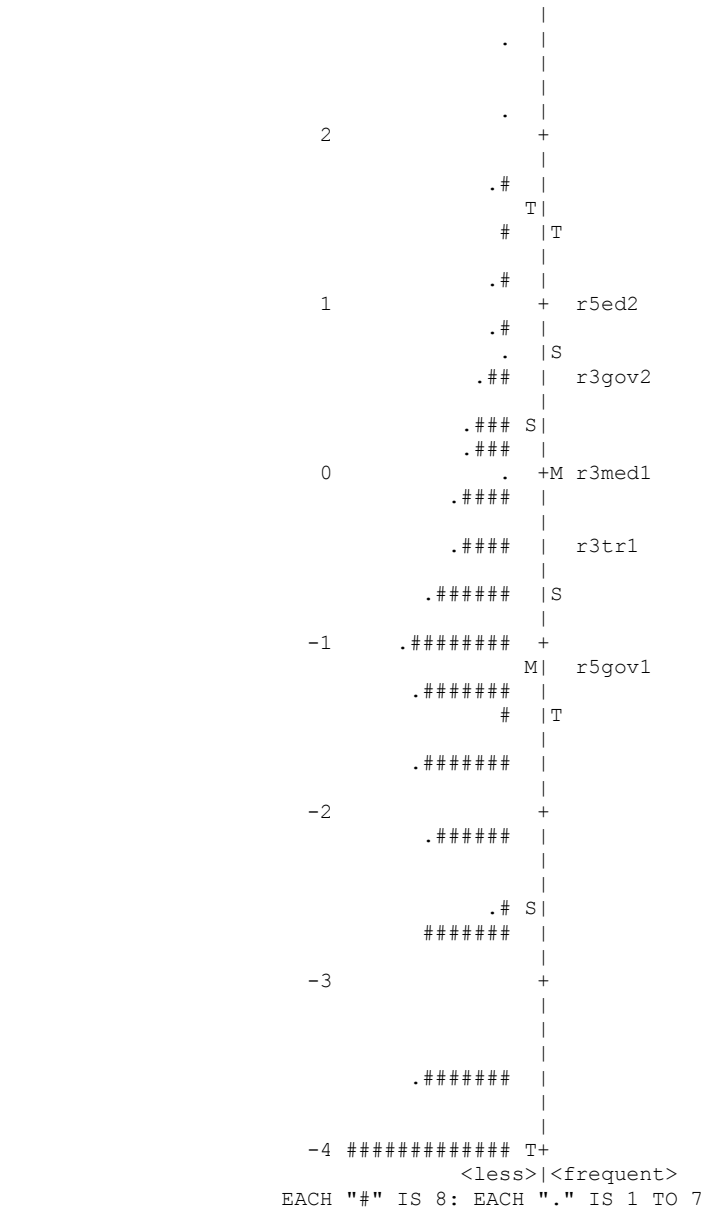
International Familiarity Wright Map for 31 Items

```
MEASURE    Person - MAP - Item
               <more>|<rare>
    4             .  +
                     |
                     |
                     |
                  .  |
                     |
```

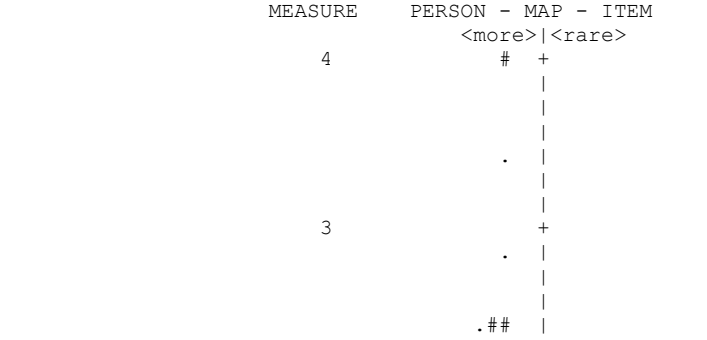
```
                    |
    3               +
                    |
                .   |
                    |
                    |
                .   |
                    |T
    2           .   +
                    |
                # T |
                    |
               .#   |
                    |
               ##   |  x3w3
    1        .#####  +S
                    |  x3mo1
             ####   |
            .####   |  x3le2
                . S |
            .####   |
          .######   |  x5ed1
    0           .   +M
          .#####    |
         .######    |
                    |
       .########   |
                    |
     .########### M|  xg1
   -1               +S
       .#########  |
        .########  |
               .#  |
                    |
       .#########  |
                    |  x5tr2
   -2     .#######  +
                . S|T
                    |
          .#####    |
               .    |
                    |
                    |
   -3        #####  +
                    |
               #    |
                  T |
               .    |
                    |
             .##    |
   -4    .#########  +
             <less>|<frequent>
 EACH "#" IS 7: EACH "." IS 1 TO 6
```

Domestic Familiarity Wright Map for 31 Items

```
MEASURE    PERSON - MAP - ITEM
              <more>|<rare>
    4             .  +
                     |
                     |
                     |
                     |
                .    |
                     |
    3                +
                     |
```



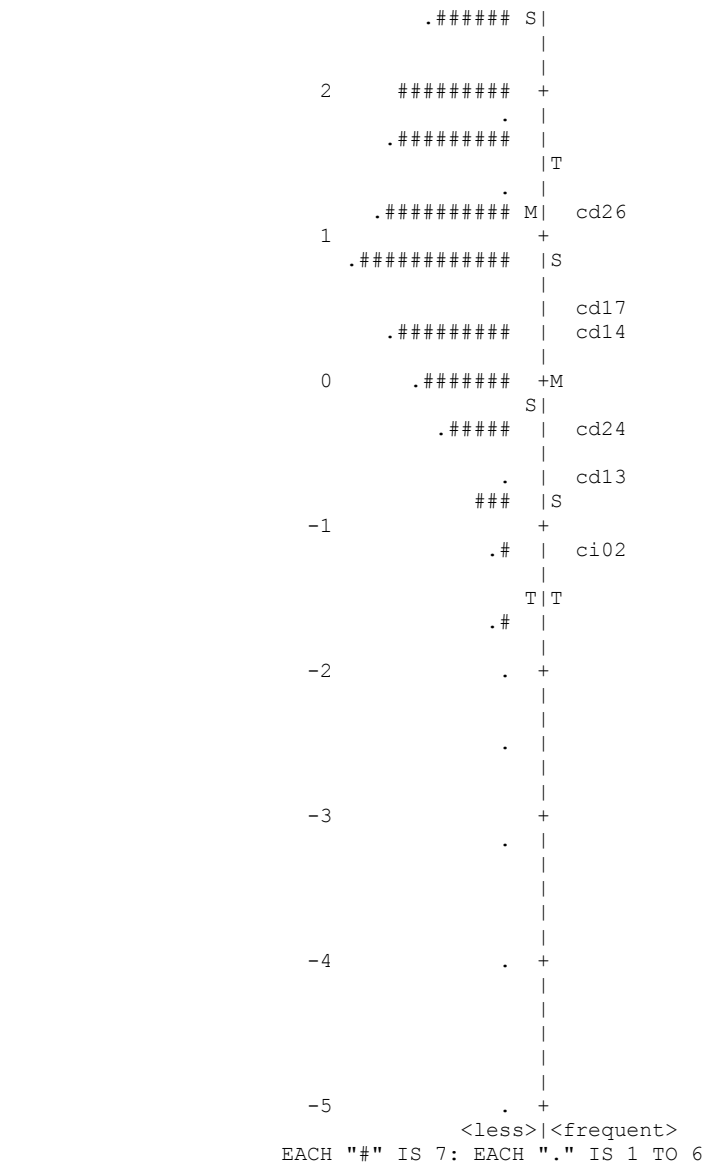
Regional Familiarity Wright Map for 31 Items



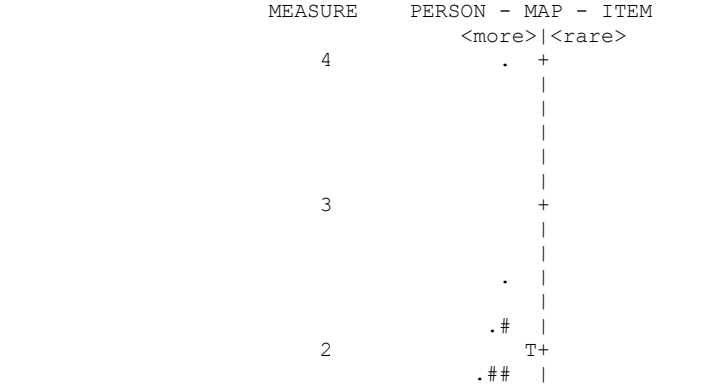
```
                    |
                .# T|T
    2               +
                .##  |
                  .  |  a5ed2
                .##  |
                ###  |
                     |
                ###  |
    1           ###  +S
             .##### S|  a5med1
                     |
               .####  |
            .#######  |  a3com3
            .#######  |
            .#######  |
    0              .  +M
          .########  |  ag1
        .#########  |
      .###########  |  a3le1
        .######### M|
                     |
         #########  |  a5com1
   -1   .##########  +S
                     |
          ########  |
                 .  |
          ########  |  a5com3
                     |
             .##### S|
   -2                +
            .######  |T
                     |
                     |
              #####  |
                     |
                     |
   -3                +
             .#####  |
                    T|
                  .  |
                     |
                     |
               .####  |
   -4    .#########  +
               <less>|<frequent>
 EACH "#" IS 4: EACH "." IS 1 TO 3
```

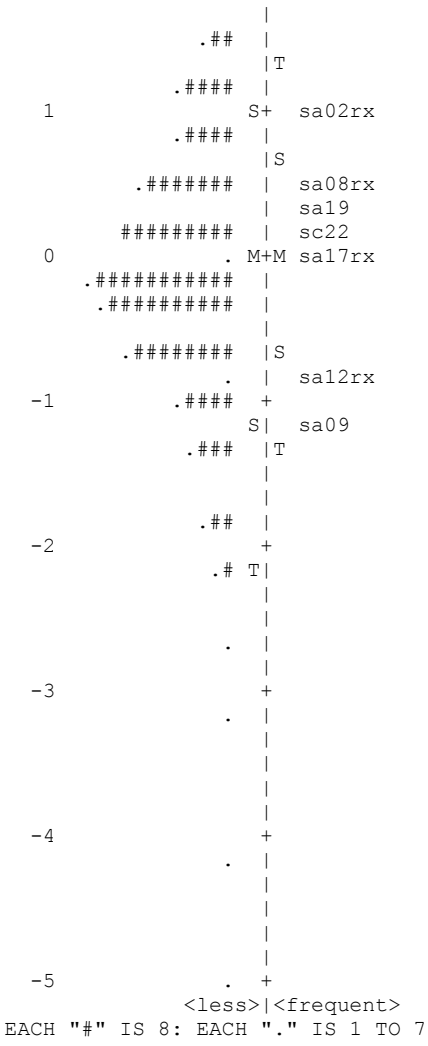
Connection Wright Map for 31 Items

```
MEASURE    PERSON - MAP - ITEM
               <more>|<rare>
    5           .###  +
                      |
                      |
                      |
                      |
                .###  |
    4                 +
                     T|
                      |
                      |
                      |
             .#####   |
    3                 +
                      |
                      |
```



Separation Wright Map for 31 Items




1
0
-1
-2
-3
-4
-5
sa02rx
sa08rx
sa19
sc22
sa17rx
sa12rx
sa09
<less>|<frequent>
EACH "#" IS 8: EACH "." IS 1 TO 7

APPENDIX E

ITEMS DROPPED AFTER THE PILOT TEST

Legend: IF=International Familiarity, DF=Domestic Familiarity, RF=Regional Familiarity, C=Connection, S=Separation

Scale	Item
IF	Going by your gut feeling, mark your level of agreement with the following statements: I have experience in multiple countries.
IF	I have consumed media (TV shows, movies, music etc.) from five countries (not necessarily while in-country).
IF	I can write a few sentences describing myself in three languages.
IF	I can write a well-structured essay in three languages.
IF	I have attempted to cook a traditional food of three countries.
IF	I have experienced five distinct climates.
DF	Going by your gut feeling, mark your level of agreement with the following statements:- In the country I have most experienced, I have seen firsthand its various states, provinces, or regions.
DF	I have read a newspaper or watched news on TV that was only available locally in five states, provinces, or regions within one country.
RF	Going by your gut feeling, mark your level of agreement with the following statement: In the state, province, or region I have most experienced, I have seen firsthand its urban and rural areas.
RF	I have read a newspaper or watched news on TV that was only available locally in five urban or rural areas within one state, province, or region.
C	The schools I have attended feel like part of me.
C	I think of a certain climate as part of my identity.
C	I try to retain what I've learned of other languages.
S	I keep up with news related to most of the places I have lived before.
S	Most of the homes I lived in previously are nearby.
S	I stay connected with what is going on with at least one of my past schools.
S	My current work is different from what I did in other places.
S	I wouldn't feel connected if I were to go back to past communities because they have changed.
S	I will likely reconnect with at least one of my previous schools in the future.
S	I feel sad that I might not have the chance to live in certain climates again.
S	I will likely return to most medical systems I used previously.
S	I will likely speak with a native speaker again in most of the languages I have conversed in before.
S	I will likely read again in most of the languages I have read in before.
S	In the future I will likely do a similar type of work as I have done in the past.

APPENDIX F

ROTATED COMPONENT MATRIX FROM THE 229-ITEM PRINCIPAL COMPONENTS ANALYSIS

Legend: IF=International Familiarity, DF=Domestic Familiarity, RF=Regional Familiarity, C=Connection, S=Separation

Scale	Item	1	2	3	4	5
IF	I have hosted a celebration in three countries.	**0.81**	0.07	0.06	0.14	0.10
IF	At one time I was familiar with the traffic patterns of a city or town in three countries.	**0.79**	0.11	0.01	0.12	0.13
IF	I have adapted to living in three countries.	**0.77**	0.07	-0.01	0.18	0.21
IF	I have been part of a community (of any kind) in three countries.	**0.76**	0.10	0.05	0.19	0.20
IF	I have shopped for groceries in five countries.	**0.76**	0.15	0.08	0.12	-0.01
IF	I have done a household chore (i.e. laundry, cleaning a bathroom, cleaning a floor) in five count...	**0.75**	0.14	0.12	0.11	0.07
IF	I have cooked food in five countries.	**0.75**	0.08	0.09	0.08	-0.01
IF	I have had a cell phone or phone line for my personal use in three countries.	**0.74**	0.03	-0.07	0.08	0.03
IF	I have been part of a community of locals in three countries. The word "local" indicates someone...	**0.72**	0.10	0.11	0.18	0.18
IF	I have felt comfortable at a work environment I was in for longer than six months in three countr...	**0.71**	0.09	0.01	0.06	0.07
IF	I have regularly participated in a recreational activity or hobby with a group of people in three...	**0.71**	0.06	0.10	0.23	0.09
IF	I have had a bank account in three countries that used different currencies.	**0.71**	-0.07	-0.01	0.00	0.07
IF	I (with my own finances) have paid rent (on a monthly basis) in three countries.	**0.71**	0.07	0.04	0.03	0.11
IF	I have deeply experienced the culture of three countries.	**0.71**	0.04	0.05	0.17	0.13
IF	I have had a leadership role in a community or social group (of any kind) in three countries.	**0.70**	0.16	0.11	0.06	0.07
IF	I have bought medicine in five countries.	**0.70**	0.07	0.09	0.08	0.08
IF	I have had official documents (e.g. passport, visa, residence document) issued to me by the gover...	**0.70**	0.10	-0.04	0.12	0.20
IF	I have given and received help (e.g. a meal, childcare, or emotional support when needed) as part...	**0.70**	0.11	0.10	0.19	0.18
IF	I have been responsible for plants or a pet in three countries.	**0.69**	0.05	0.02	0.12	0.16
IF	I have made arrangements for my own or someone else's education in three countries.	**0.69**	0.10	0.06	0.03	0.08

IF	I have eaten locally-prepared foods in five different countries that local people commonly eat in...	**0.68**	0.16	0.00	0.17	-0.03
IF	I have been to a ticketed event (e.g. live performance, movie, fair) in five countries.	**0.68**	0.15	0.00	0.09	-0.05
IF	I have exchanged contact information with (or friended on social media) a local person in five co...	**0.67**	0.11	0.10	0.19	0.04
IF	I have read a newspaper or watched news on TV that was only available locally in five countries.	**0.67**	0.17	0.14	0.12	-0.04
IF	I have taken someone else to a doctor's appointment in three countries.	**0.67**	0.12	0.09	0.03	0.08
IF	I have visited a doctor in five countries.	**0.67**	0.09	0.03	0.03	0.14
IF	I have taught a class or workshop in three countries.	**0.67**	0.16	0.09	0.04	0.13
IF	I have visited a school in five countries.	**0.66**	0.20	0.08	0.10	0.09
IF	I can blend in culturally and know how to behave according to cultural norms in three countries.	**0.66**	0.08	0.03	0.17	0.09
IF	I have attended a meeting (e.g. conference, church service, class) meant to gather people like me...	**0.66**	0.19	0.03	0.07	0.07
IF	I have given and received help (e.g. a meal, childcare, or emotional support when needed) as part...	**0.66**	0.11	0.15	0.17	0.14
IF	I have participated in outdoor recreation in five countries.	**0.65**	0.12	0.08	0.07	-0.08
IF	I have attended at least one meeting of any kind of regularly-meeting group in five countries.	**0.65**	0.17	0.11	0.09	0.08
IF	I have received pay for work in five countries.	**0.64**	0.07	0.12	-0.01	0.03
IF	I have had a leadership role in a community or social group comprised of mostly locals in three c...	**0.64**	0.14	0.16	0.08	0.06
IF	I have worked in a job with mostly local coworkers in three countries. The word "local" indicates...	**0.64**	0.09	0.07	0.05	0.07
IF	I have had to adjust to changes in climate because of my time in three countries.	**0.64**	0.18	0.05	0.14	0.18
IF	I have witnessed in-person what it is like to live in five countries.	**0.64**	0.17	0.13	0.10	-0.01
IF	Overall I feel that I have experience in five countries.	**0.63**	0.18	0.04	0.10	0.05
IF	I have used public transportation in five countries.	**0.62**	0.17	0.00	0.09	-0.02
IF	I have purchased something in five different currencies.	**0.62**	0.18	-0.02	0.14	0.02
IF	I have mailed or received a letter in five countries.	**0.61**	0.16	0.10	0.10	0.07
IF	I have gotten a promotion at a job I had in three countries.	**0.61**	0.08	0.14	0.03	0.00
IF	I have driven a car in five countries.	**0.60**	0.20	0.14	-0.08	-0.02
IF	I have owned a vehicle or pass that carried a balance (for multiple uses) for public transportati...	**0.59**	0.11	0.04	0.08	-0.04
IF	I feel the influence on my values from the cultures of three countries.	**0.58**	0.11	0.06	0.18	0.13
IF	I have been involved in extracurricular activities at schools in five countries.	**0.56**	0.11	0.05	0.11	0.09
IF	I have participated in an organized competition in three countries.	**0.55**	0.11	0.07	0.14	0.01

IF	I have enrolled in and attended schools in five countries.	**0.53**	0.03	-0.01	0.10	0.11
IF	I have had health insurance from (i.e. provided by an entity within that country) three countries.	**0.53**	-0.11	-0.09	0.03	-0.01
IF	I have participated in (played not watched) a sporting event in five countries.	**0.52**	0.08	0.10	0.08	-0.03
IF	I can have a 10-minute conversation with a stranger in three [living] languages.	**0.52**	0.09	-0.03	0.21	0.05
IF	I have done volunteer work in five countries.	**0.50**	0.19	0.22	0.05	0.12
S	My communities are spread out all over the world.	**0.50**	0.08	-0.04	0.39	0.22
IF	I can read and understand a children's picture-book in three [living] languages.	**0.49**	0.05	-0.03	0.23	0.04
IF	I have been to a traditional celebration, wedding, or funeral in five countries.	**0.45**	0.02	0.07	0.02	0.04
S	I had bank accounts in other countries that are now closed.	**0.43**	-0.03	-0.01	0.13	0.24
IF	I have enrolled in and attended schools in three languages (the primary language you were taught...	**0.42**	-0.04	-0.05	0.16	0.06
IF	I have visited a historical landmark or museum in five countries.	**0.42**	0.05	0.03	0.01	0.01
IF	I can speak fluently (expressing myself easily and accurately) to others in three [living] langua...	**0.40**	-0.03	-0.04	0.18	0.07
IF	I can read and understand a novel in three [living] languages.	**0.39**	-0.04	-0.04	0.18	0.04
IF	I have owned housing or land in three countries.	**0.33**	-0.01	0.01	-0.08	-0.02
IF	I have voted in a government election in three countries.	**0.29**	-0.12	-0.01	0.01	0.00
DF	I have been part of a community (of any kind) in three states, provinces, or regions within one c...	0.09	**0.82**	0.16	0.09	0.13
DF	I have adapted to living in three states, provinces, or regions within one country.	0.09	**0.82**	0.05	0.06	0.14
DF	At one time I was familiar with the traffic patterns of a city or town in three states, provinces...	0.13	**0.80**	0.12	0.01	0.04
DF	I have been part of a community of locals in three states, provinces, or regions within one count...	0.10	**0.80**	0.18	0.10	0.11
DF	I have hosted a celebration in three states, provinces, or regions within one country.	0.17	**0.79**	0.14	0.08	0.11
DF	I have felt comfortable at a work environment I was in for longer than six months in three states...	0.12	**0.76**	0.10	0.01	0.07
DF	I have had official documents (e.g. drivers license, voter registration, etc.) issued to me by th...	0.08	**0.75**	0.07	0.03	0.19
DF	I have given and received help (e.g. a meal, childcare, or emotional support when needed) as part...	0.19	**0.74**	0.19	0.08	0.09
DF	I (with my own finances) have paid rent (on a monthly basis) in three states, provinces, or regio...	0.18	**0.74**	0.14	-0.04	0.11
DF	I have given and received help (e.g. a meal, childcare, or emotional support when needed) as part...	0.18	**0.74**	0.18	0.10	0.07
DF	I have had a leadership role in a community or social group (of any kind) in three states, provin...	0.15	**0.73**	0.20	0.07	0.09
DF	I have been responsible for plants or a pet in three states, provinces, or regions within one cou...	0.08	**0.73**	0.19	0.07	0.09
DF	I have owned a vehicle, or a pass that carried a balance (for multiple uses) for public transport...	0.13	**0.72**	0.14	0.04	0.03

DF	I have visited a doctor in five states, provinces, or regions within one country.	0.14	**0.72**	0.15	0.00	0.10
DF	I have had a leadership role in a community or social group comprised of mostly locals in three s...	0.12	**0.72**	0.22	0.06	0.09
DF	I have done a household chore (i.e. laundry, cleaning a bathroom, cleaning a floor) in five state...	0.18	**0.71**	0.27	0.05	0.01
DF	I have had to adjust to changes in climate because of my time in three states, provinces, or regi...	0.06	**0.70**	0.12	0.03	0.11
DF	I have made arrangements for my own or someone else's education in three states, provinces, or re...	0.19	**0.69**	0.14	0.02	0.09
DF	I have mailed or received a letter in five states, provinces, or regions within one country.	0.16	**0.68**	0.19	0.01	0.02
DF	I have visited a school in five states, provinces, or regions within one country.	0.10	**0.68**	0.11	0.04	-0.04
DF	I have taken someone else to a doctor's appointment in three states, provinces, or regions within...	0.21	**0.68**	0.24	0.00	0.10
DF	I have regularly participated in a recreational activity or hobby with a group of people in three...	0.02	**0.67**	0.21	0.10	-0.04
DF	I have cooked food in five states, provinces, or regions within one country.	0.18	**0.67**	0.26	0.03	-0.02
DF	I have received pay for work in five states, provinces, or regions within one country.	0.18	**0.66**	0.22	0.01	0.03
DF	I have voted in a government election in three states, provinces, or regions within one country.	0.03	**0.66**	0.12	-0.03	0.15
DF	I have shopped for groceries in five states, provinces, or regions within one country.	0.18	**0.65**	0.22	0.07	-0.04
DF	I have done volunteer work in five states, provinces, or regions within one country.	0.15	**0.65**	0.27	0.08	0.01
DF	I have been involved in extracurricular activities at schools in five states, provinces, or regio...	0.05	**0.65**	0.07	0.06	0.03
DF	I have enrolled in and attended schools in five states, provinces, or regions within one country.	0.04	**0.64**	0.05	0.00	0.13
DF	Overall I feel that I have experience in five states, provinces, or regions within one country.	0.03	**0.64**	0.21	0.05	-0.03
DF	I have attended a meeting (e.g. conference, church service, class) meant to gather people like me...	0.09	**0.64**	0.22	0.10	-0.02
DF	I have gotten a promotion at a job I had in three states, provinces, or regions within one country.	0.13	**0.62**	0.24	0.03	0.07
DF	I have participated in an organized competition in three states, provinces, or regions within one...	-0.05	**0.61**	0.16	0.07	-0.13
DF	I have attended at least one meeting of any kind of regularly-meeting group in five states, provi...	0.16	**0.60**	0.22	0.12	0.02
DF	I have taught a class or workshop in three states, provinces, or regions within one country.	0.25	**0.59**	0.24	0.01	0.10
DF	I have witnessed in-person what it is like to live in five states, provinces, or regions within o...	0.07	**0.58**	0.23	0.08	-0.08
DF	I have exchanged contact information with (or friended on social media) a local person in five st...	0.11	**0.57**	0.16	0.11	-0.06
DF	I have driven a car in five states, provinces, or regions within one country.	0.10	**0.55**	0.21	0.03	-0.09
DF	I have been to a ticketed event (e.g. live performance, movie, fair) in five states, provinces, o...	0.07	**0.55**	0.21	0.06	-0.22
DF	I have participated in (played not watched) a sporting event in five states, provinces, or region...	0.04	**0.52**	0.13	0.13	-0.16
DF	I have participated in outdoor recreation in five states, provinces, or regions within one country.	0.02	**0.51**	0.19	0.10	-0.19

DF	I have used public transportation in five states, provinces, or regions within one country.	0.30	**0.46**	0.15	0.06	-0.12
DF	I have owned housing or land in three states, provinces, or regions within one country.	0.02	**0.41**	0.17	-0.09	0.09
S	My communities are spread out all over a country.	0.03	**0.35**	0.04	0.28	0.02
RF	I have been part of a community (of any kind) in three cities or towns within one state, province...	0.09	0.17	**0.82**	0.07	0.02
RF	I have been part of a community of locals in three cities or towns within one state, province, or...	0.08	0.15	**0.81**	0.06	0.02
RF	I have given and received help (e.g. a meal, childcare, or emotional support when needed) as part...	0.12	0.18	**0.79**	0.11	0.01
RF	I have adapted to living in three cities or towns within one state, province, or region.	0.02	0.15	**0.79**	0.04	0.03
RF	I have done a household chore (i.e. laundry, cleaning a bathroom, cleaning a floor) in five citie...	0.11	0.16	**0.79**	0.05	-0.03
RF	I have hosted a celebration in three cities or towns within one state, province, or region.	0.12	0.19	**0.78**	0.08	-0.02
RF	I have given and received help (e.g. a meal, childcare, or emotional support when needed) as part...	0.14	0.20	**0.78**	0.07	0.02
RF	I have had a leadership role in a community or social group comprised of mostly locals in three c...	0.10	0.18	**0.76**	0.03	0.01
RF	I have cooked food in five cities or towns within one state, province, or region.	0.12	0.14	**0.75**	0.05	-0.09
RF	I have had a leadership role in a community or social group (of any kind) in three cities or town...	0.09	0.19	**0.75**	0.03	-0.01
RF	I (with my own finances) have paid rent (on a monthly basis) in three cities or towns within one...	0.09	0.16	**0.75**	0.02	0.04
RF	I have been responsible for plants or a pet in three cities or towns within one state, province,...	0.02	0.18	**0.73**	0.08	0.05
RF	I have visited a doctor in five cities or towns within one state, province, or region.	0.09	0.21	**0.73**	0.00	0.03
RF	I have felt comfortable at a work environment I was in for longer than six months in three cities...	0.04	0.15	**0.73**	0.04	0.06
RF	I have received pay for work in five cities or towns within one state, province, or region.	0.06	0.14	**0.72**	0.03	0.01
RF	I have mailed or received a letter in five cities or towns within one state, province, or region.	0.12	0.23	**0.70**	0.04	0.01
RF	I have shopped for groceries in five cities or towns within one state, province, or region.	0.10	0.20	**0.70**	0.07	-0.03
RF	I have done volunteer work in five cities or towns within one state, province, or region.	0.10	0.20	**0.70**	0.11	-0.01
RF	I have regularly participated in a recreational activity or hobby with a group of people in three...	0.00	0.17	**0.70**	0.09	-0.09
RF	I have taken someone else to a doctor's appointment in three cities or towns within one state, pr...	0.12	0.24	**0.70**	0.03	0.04
RF	I have gotten a promotion at a job I had in three cities or towns within one state, province, or...	0.06	0.21	**0.69**	0.00	0.03
RF	I have voted in a government election in three cities or towns within one state, province, or reg...	0.00	0.17	**0.67**	0.02	0.02
RF	I have attended a meeting (e.g. conference, church service, class) meant to gather people like me...	0.06	0.17	**0.67**	0.01	-0.05
RF	I have witnessed in-person what it is like to live in five cities or towns within one state, prov...	0.05	0.16	**0.66**	0.06	-0.07
RF	Overall I feel that I have experience in five cities or towns within one state, province, or region.	0.02	0.16	**0.66**	0.04	-0.04

RF	I have made arrangements for my own or someone else's education in three cities or towns within o...	0.11	0.18	**0.66**	0.05	0.05
RF	I have attended at least one meeting of any kind of regularly-meeting group in five cities or tow...	0.11	0.23	**0.64**	0.03	0.01
RF	I have taught a class or workshop in three cities or towns within one state, province, or region.	0.23	0.22	**0.64**	0.04	0.05
RF	I have exchanged contact information with (or friended on social media) a local person in five ci...	0.00	0.23	**0.63**	0.07	-0.06
RF	I have been to a ticketed event (e.g. live performance, movie, fair) in five cities or towns with...	-0.03	0.17	**0.62**	0.03	-0.18
RF	I have enrolled in and attended schools in five cities or towns within one state, province, or re...	0.01	0.11	**0.61**	0.05	0.02
RF	I have visited a school in five cities or towns within one state, province, or region.	0.03	0.19	**0.61**	0.09	-0.10
RF	I have participated in outdoor recreation in five cities or towns within one state, province, or...	-0.02	0.23	**0.60**	0.06	-0.20
RF	I have been involved in extracurricular activities at schools in five cities or towns within one...	0.04	0.13	**0.59**	0.05	-0.03
RF	I have participated in an organized competition in three cities or towns within one state, provin...	-0.08	0.17	**0.51**	0.09	-0.23
RF	I have participated in (played not watched) a sporting event in five cities or towns within one s...	-0.04	0.14	**0.47**	0.07	-0.25
RF	I have owned housing or land in three cities or towns within one state, province, or region.	0.04	0.11	**0.47**	-0.02	0.03
C	I long to connect to cultures I've experienced before.	0.08	0.01	0.00	**0.73**	0.08
C	I miss being part of the cultures I have experienced before.	0.10	0.05	-0.03	**0.73**	0.14
C	I seek out opportunities that remind me of experiences I had in another place.	0.10	0.07	0.05	**0.65**	0.02
C	I want to meet more people who have lived in one of the same places as I have.	0.17	0.06	-0.04	**0.64**	0.13
C	I wish I could still spend time with my friends from most of the other places I've lived.	0.09	0.07	0.04	**0.64**	0.01
C	Some smells make me wish to experience places again (because the smell reminds me of that place).	0.13	0.06	0.07	**0.63**	0.05
C	I would love to retrace the routes I used to regularly travel in another place.	0.03	-0.02	0.06	**0.62**	0.06
C	I often think about visiting the places I have been to before.	0.02	0.05	0.07	**0.62**	-0.03
C	I long to be part of most of the communities I was once part of in other places.	0.05	0.01	0.01	**0.62**	0.06
C	I am happy when I get a chance to use some of my cultural knowledge from another place.	0.17	0.09	-0.02	**0.60**	0.00
C	I often think back to the food I ate in another place, wishing I could eat it now.	0.06	0.07	0.02	**0.59**	0.07
C	I have positive feelings about the idea of living again in most of the places I have lived before.	0.15	0.06	0.01	**0.58**	-0.07
C	The cultures of the places I used to live feel like part of me.	0.14	0.11	0.05	**0.57**	-0.11
C	There are particular recreational activities or hobbies I did in another place that I long to do...	0.04	-0.02	0.06	**0.57**	0.01
C	Certain values of mine tie me to a community I was part of that was rooted in another place.	0.10	0.09	0.06	**0.56**	-0.01
C	I long to experience the geographic features of another place again.	0.03	0.03	0.10	**0.56**	0.01

C	The routes I used to take to get around town in other places feel like part of me.	0.10	0.03	0.02	**0.55**	-0.03
C	I wish I could visit the physical spaces (e.g. house, apartment) I used to live in.	0.03	-0.04	0.07	**0.55**	0.05
C	I often think of friends I met in another place.	0.10	0.07	0.04	**0.55**	0.03
C	I often think about how much I love the climate of another place I have spent time before.	-0.03	-0.02	0.11	**0.54**	0.00
C	I wish I could use the kind of transportation I used in another place.	0.06	-0.05	0.00	**0.54**	0.04
S	I miss having access to the geographic features of most places I have lived previously.	0.05	0.07	0.09	**0.53**	0.17
C	I feel excited when I hear others speak a language I have previously studied.	0.27	-0.01	0.00	**0.53**	0.12
C	The places I have experienced are important to my identity.	0.16	0.06	-0.04	**0.53**	-0.07
C	I wish I could have the involvement that I had in a previous community.	0.01	0.04	0.02	**0.52**	0.06
C	I take pride in having many connections in the places I have lived before.	0.29	0.10	-0.02	**0.51**	-0.10
C	I feel connected to strangers who are from any place I have lived before.	0.20	0.10	-0.04	**0.50**	-0.10
C	The geographic features of certain places feel like part of me.	0.13	0.10	0.05	**0.50**	-0.04
C	I have considered going back to another place to do work that I miss doing.	0.18	0.00	0.12	**0.49**	0.07
C	I feel excited when I get the chance to speak a language I have previously learned.	0.28	-0.03	-0.01	**0.48**	0.08
C	I feel that I am part of the cultures of places I have lived before.	0.18	0.12	0.08	**0.47**	-0.14
C	I have a sense of belonging to most of the places I used to live.	0.14	0.06	0.06	**0.47**	-0.18
C	If a place I used to live in faced a natural disaster or other tragedy, I would feel that I was s...	0.15	0.06	0.00	**0.46**	-0.06
S	I miss aspects of living in the climates of most places I have lived previously.	0.04	0.06	0.04	**0.46**	0.13
C	Recreational activities or hobbies that I primarily experience in a particular place are an impor...	0.01	0.00	0.20	**0.45**	-0.13
C	I pride myself on being able to cook certain dishes from other places.	0.23	0.04	0.03	**0.43**	-0.03
C	I like staying up to date about what is going on with most of the schools I attended.	-0.02	-0.02	0.08	**0.43**	-0.17
S	I will find some way to reconnect with cultures I have enjoyed in the past.	-0.05	0.03	0.01	**-0.43**	0.41
C	I feel happy when someone associates me with having been part of a community I used to be part of...	0.09	0.12	0.01	**0.43**	-0.09
C	I feel sad not to have current documentation from certain governments.	0.17	-0.04	-0.01	**0.42**	0.21
C	I am invested in the government of a place other than where I currently live.	0.22	0.03	0.05	**0.39**	-0.08
C	I hang on to leftover (still usable) currencies from other places because I want to return there...	0.18	0.04	0.02	**0.38**	0.03
S	If I went back to the places I have lived, I have connections to someone I could stay with.	0.03	0.02	0.01	**-0.38**	0.38
C	I like it when I meet someone who attended one of the same schools as I did.	-0.04	0.07	0.04	**0.38**	-0.23

C	I have felt "at-home" in most of the places I have lived before.	0.19	0.08	0.07	**0.36**	-0.18
C	The languages I speak feel like part of my identity.	0.18	0.02	0.04	**0.36**	-0.06
S	There were unique aspects of working in places I lived previously that are no longer accessible f...	0.23	0.11	0.04	**0.34**	0.29
C	Having worked in certain places is an important part of who I am.	0.28	0.03	0.08	**0.33**	-0.14
C	Most of the places I have worked are an important part of me.	0.24	0.06	0.09	**0.30**	-0.19
S	I stay connected with what is going on at most of my past schools.	0.09	0.00	-0.05	-0.28	**0.21**
S	I will likely get to eat most of the foods I enjoyed from other places again.	0.05	0.00	0.03	0.00	**0.61**
S	It is feasible that in the next ten years I could visit most of the places I have lived before.	0.12	0.15	0.05	-0.20	**0.60**
S	I will likely continue to navigate most of the cities I have lived in previously.	0.07	0.13	-0.02	-0.16	**0.59**
S	I feel separated from most cultures I have experienced before.	-0.09	0.01	-0.04	0.15	**0.56**
S	Most forms of transportation that I used previously I will likely use again.	0.18	0.02	0.03	-0.02	**0.53**
S	I will likely visit most of the cultures I once experienced again.	0.09	0.08	0.04	-0.32	**0.52**
S	I visit most of the cities I previously lived in.	0.10	0.05	-0.06	-0.15	**0.52**
S	There are forms of transportation I used previously that I will likely never use again.	0.22	-0.03	0.07	0.16	**0.51**
S	I will likely revisit most of the communities I was once part of in other places.	0.05	0.01	0.02	-0.35	**0.51**
S	I still get to eat most of the foods I enjoyed from other places.	-0.02	0.04	-0.12	0.13	**0.50**
S	I feel separated from the languages of most places I have lived.	0.20	0.01	-0.03	0.30	**0.50**
S	I no longer have a way of experiencing the cultures I was once part of.	-0.01	0.01	-0.09	0.07	**0.50**
S	It would take a lot (e.g. time, money, planning, connections) to visit all the places I've lived...	0.23	0.20	-0.04	0.30	**0.47**
S	There are foods I enjoyed from other places that I doubt I will have the chance to eat again.	0.12	0.02	0.04	0.19	**0.47**
S	I will likely enjoy again most of the recreational activities or hobbies I used to enjoy in other...	0.11	-0.04	0.03	-0.10	**0.47**
S	I will likely use all of the [current versions of (e.g. Euro)] currencies again that I have used...	0.04	0.09	0.03	-0.03	**0.47**
S	Foods I enjoyed from most places I used to live are now difficult for me to access.	0.00	0.07	-0.10	0.27	**0.46**
S	Activities I enjoyed in most places I lived previously are still accessible for me (based on loca...	0.15	0.02	-0.04	0.08	**0.46**
S	There are particular recreational activities or hobbies I primarily did in another place that I w...	0.07	0.01	0.05	0.10	**0.44**
S	I could meet up with people I have known from most places I have lived.	-0.03	-0.02	-0.06	-0.21	**0.44**
S	I will likely see most of my friends from my young adulthood again.	0.18	0.13	0.03	-0.24	**0.43**
S	I will likely never again possess documentation issued by all the governments I previously had do...	0.26	0.00	-0.01	0.14	**0.43**

S	I learned specific ways of doing things in another environment, but have no opportunity to do thi...	0.08	0.03	-0.03	0.37	**0.41**
S	In the future I will likely work in environments similar to those I have worked at in another place.	-0.02	-0.02	-0.05	-0.16	**0.41**
S	I can access most communities that I have been part of in the past.	0.04	0.01	-0.05	-0.10	**0.41**
S	Activities I enjoyed in other places are no longer accessible for me (based on location, not abil...	0.18	0.03	0.00	0.22	**0.40**
S	I will likely see most of my friends from my teenage years again.	0.10	0.10	0.01	-0.24	**0.40**
S	I feel disconnected from languages I previously had the opportunity to use regularly.	0.18	0.01	0.00	0.32	**0.39**
S	I still use the nearly all the same kinds of transportation that I have used in the past.	0.12	-0.03	-0.10	0.09	**0.38**
S	I will likely see most of my childhood friends again.	0.09	0.13	0.01	-0.21	**0.34**
S	My official documents from other countries are expired or terminated.	0.18	-0.02	-0.09	0.19	**0.33**
S	I have ongoing communication (e.g. dialogue of some kind via social media, email, phone, etc.) wi...	-0.10	-0.07	-0.14	-0.26	**0.33**
S	I will likely reconnect with most of my previous schools in the future.	0.12	0.08	-0.02	-0.22	**0.32**
S	I still come in contact with speakers of the languages of places I lived before.	-0.22	0.07	-0.08	-0.10	**0.31**
S	I doubt I will again interact with a native-speaker of languages I have conversed in before.	0.08	-0.05	0.07	0.00	**0.24**

APPENDIX G

PROBLEMATIC ITEMS IN RATING SCALE EVALUATION

Items in which there were less than 10 observations give the number of the problematic categories followed by the number of responses in that category. Items in which the average measures did not increase are marked with an 'x.'

Legend: IF=International Familiarity, DF=Domestic Familiarity, RF=Regional Familiarity, C=Connection, S=Separation

Familiarity categories: 3="About the Same," 4="Slightly More," 5="Many More"

Connection and Separation categories: 1= "Strongly Disagree"

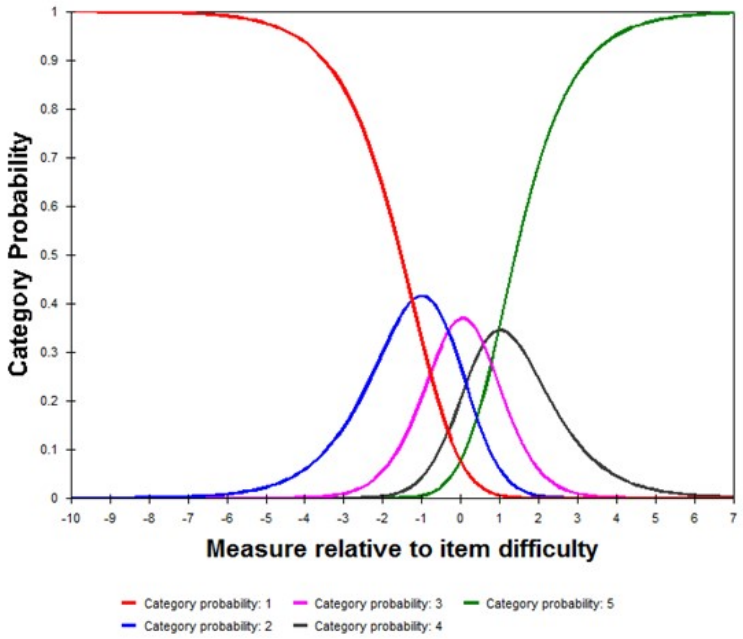
Scale	Item	Did Not Increase	Categories with <10	Number of Responses
IF	I have driven a car in five countries.	x		
IF	I have enrolled in and attended schools in five countries.		5	5
IF	I have owned housing or land in three countries.	x	4, 5	3, 0
IF	I have gotten a promotion at a job I had in three countries.		5	8
IF	I have voted in a government election in three countries.		3, 4, 5	7, 0, 0
IF	I have had health insurance from (i.e. provided by an entity within that country) three countries.		5	5
IF	I can have a 10-minute conversation with a stranger in three [living] languages.	x		
IF	I have enrolled in and attended schools in three languages (the primary language you were taught...	x	4, 5	6, 4
IF	I can speak fluently (expressing myself easily and accurately) to others in three [living] languages.		5	7
IF	I can read and understand a novel in three [living] languages.		5	3
DF	I have owned housing or land in three states, provinces, or regions within one country.		5	5
RF	I have owned housing or land in three cities or towns within one state, province, or region.		5	6

C	The cultures of the places I used to live feel like part of me.		1	9
C	The places I have experienced are important to my identity.		1	6
C	I often think of friends I met in another place.		1	7
C	I wish I could still spend time with my friends from most of the other places I've lived.		1	9
C	I am happy when I get a chance to use some of my cultural knowledge from another place.		1	3
C	I often think about visiting the places I have been to before.		1	6
S	I doubt I will again interact with a native-speaker of languages I have conversed in before.	x		
S	I still come in contact with speakers of the languages of places I lived before.	x		
S	I will likely enjoy again most of the recreational activities or hobbies I used to enjoy in other...	x		

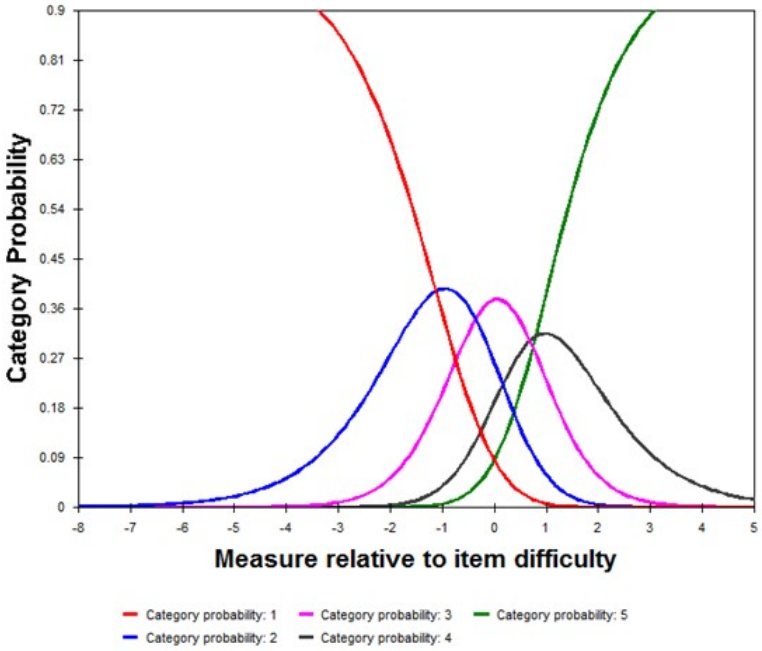
APPENDIX H

CATEGORY PROBABILITY CURVES

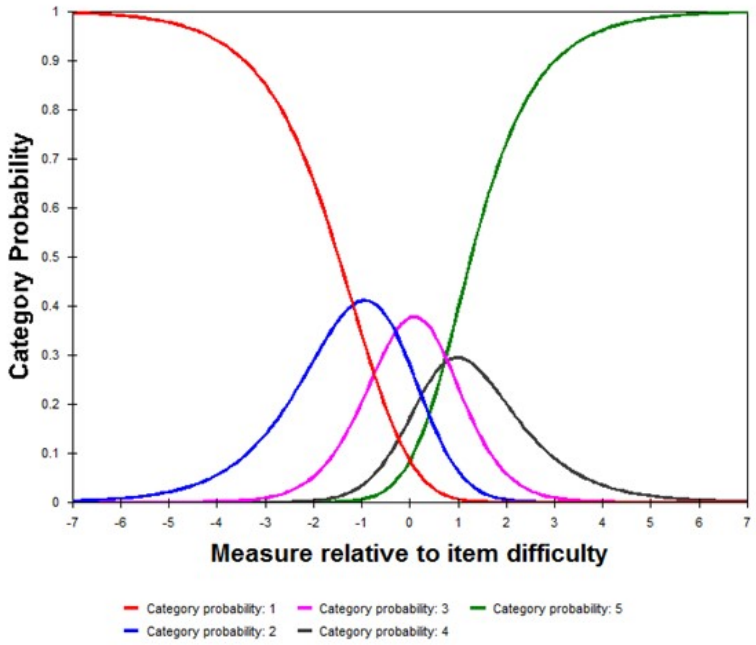
Included below are the category probability curves for each scale from the 229-item version, and the 31-item version.



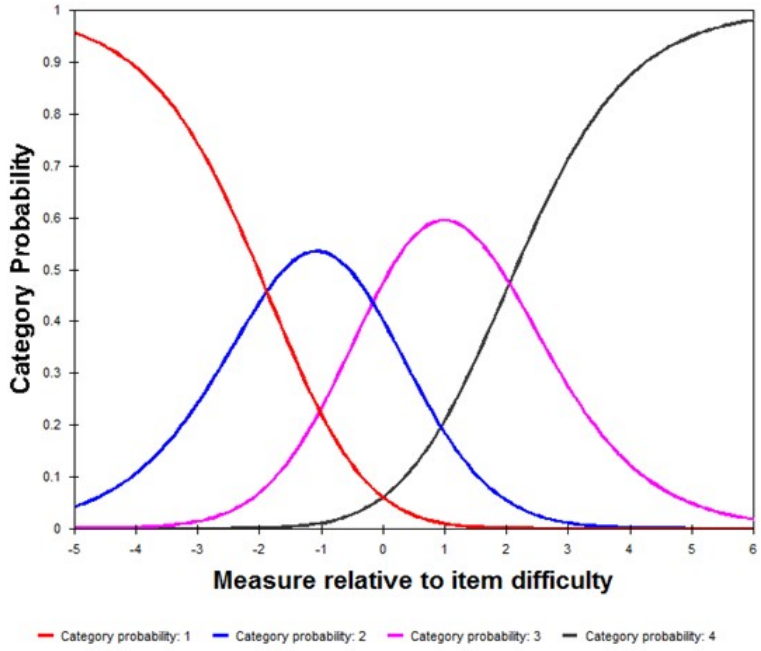
International Familiarity Category Probability Curves from 229 Items



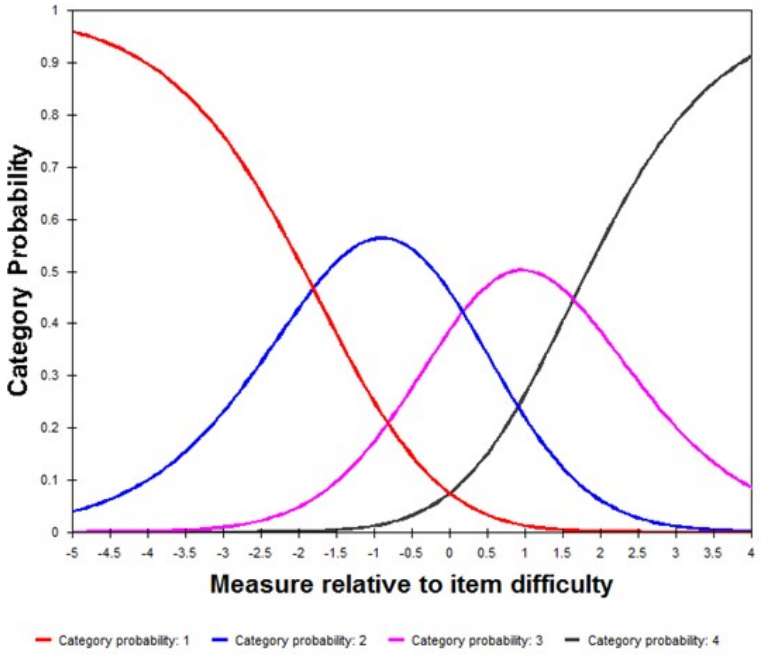
Domestic Familiarity Category Probability Curves from 229 Items



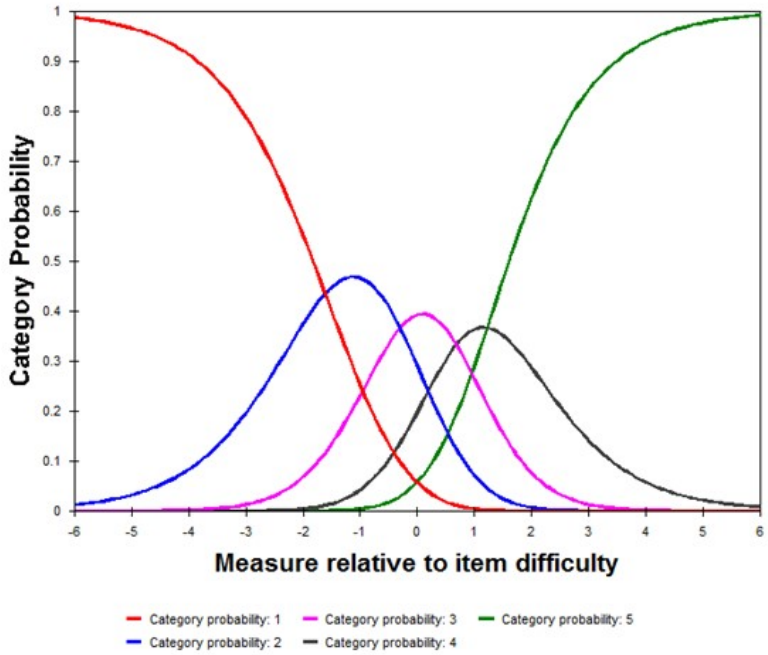
Regional Familiarity Category Probability Curves from 229 Items



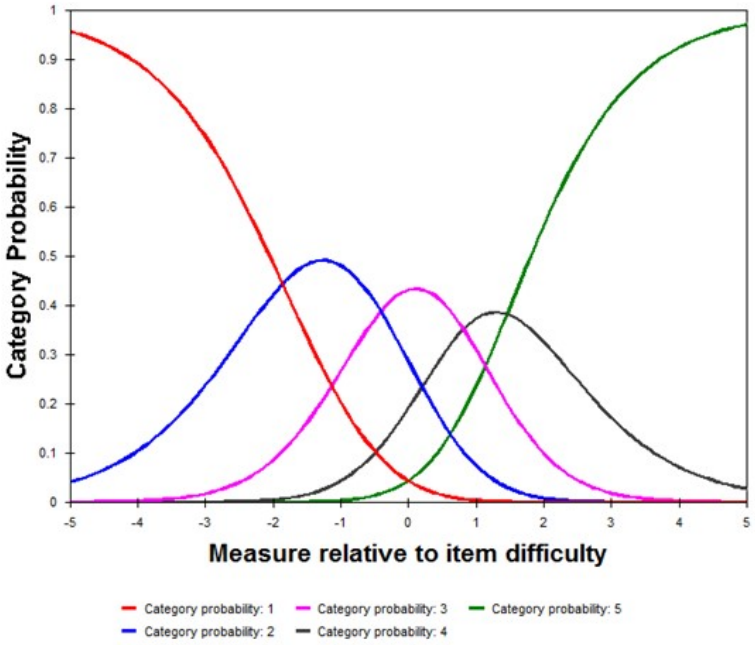
Connection Category Probability Curves from 229 Items



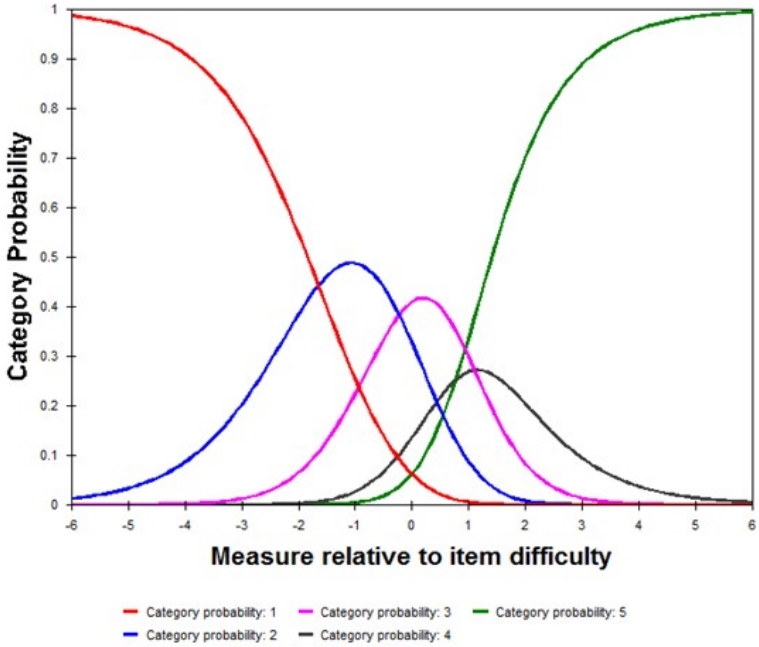
Separation Category Probability Curves from 229 Items



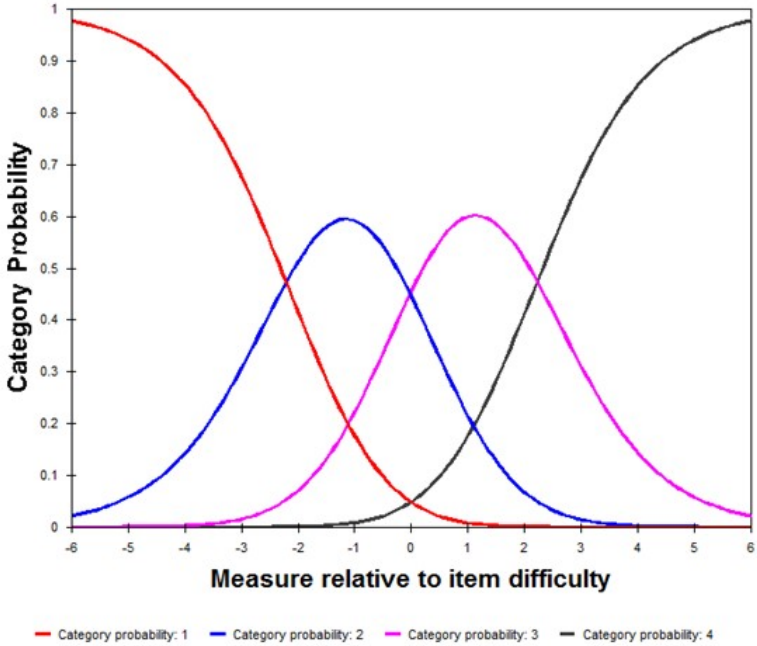
International Familiarity Category Probability Curves from 31 Items



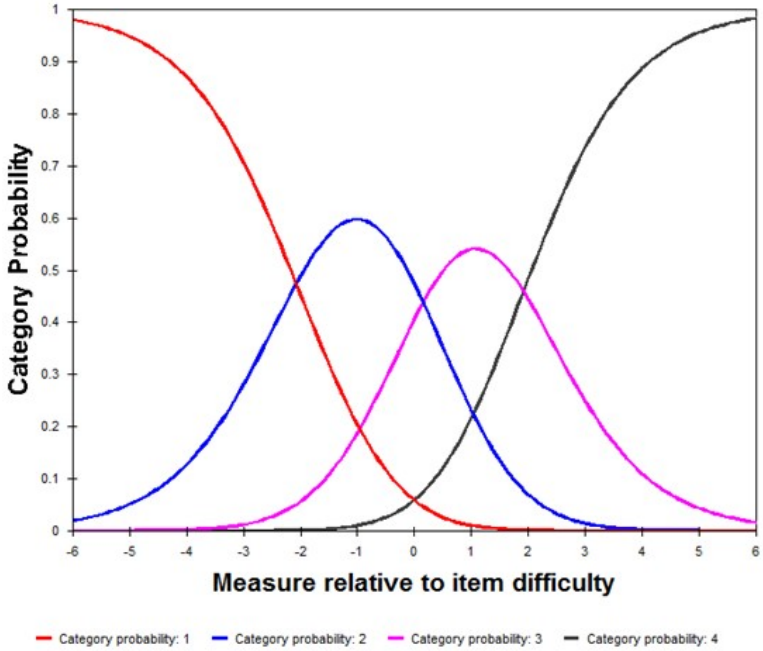
Domestic Familiarity Category Probability Curves from 31 Items



Regional Familiarity Category Probability Curves from 31 Items



Connection Category Probability Curves from 31 Items



Separation Category Probability Curves from 31 Items

APPENDIX I

ROTATED COMPONENT MATRIX FROM THE 31-ITEM PRINCIPAL COMPONENTS ANALYSIS

Legend: IF=International Familiarity, DF=Domestic Familiarity, RF=Regional Familiarity, C=Connection, S=Separation

Scale	Item	1	2	3	4	5
RF	I have attended a meeting (e.g. conference, church service, class) meant to gather people like me...	**0.78**	0.07	0.02	0.02	-0.04
RF	I have regularly participated in a recreational activity or hobby with a group of people in three...	**0.76**	0.01	0.07	0.07	-0.01
RF	I have exchanged contact information with (or friended on social media) a local person in five ci...	**0.74**	-0.01	0.10	0.07	-0.02
RF	Overall I feel that I have experience in five cities or towns within one state, province, or region.	**0.73**	0.07	0.06	0.04	0.00
RF	I have visited a doctor in five cities or towns within one state, province, or region.	**0.72**	0.08	0.26	0.02	0.04
RF	I have had a leadership role in a community or social group comprised of mostly locals in three c...	**0.72**	0.07	0.16	0.05	0.02
RF	I have enrolled in and attended schools in five cities or towns within one state, province, or re...	**0.61**	-0.04	0.17	0.06	0.05
IF	I have had a bank account in three countries that used different currencies.	-0.04	**0.73**	-0.04	0.00	0.13
IF	I have been responsible for plants or a pet in three countries.	-0.02	**0.70**	0.08	0.16	0.19
IF	Overall I feel that I have experience in five countries.	0.10	**0.70**	0.13	0.12	0.01
IF	I have used public transportation in five countries.	0.04	**0.70**	0.14	0.05	-0.08
IF	I have worked in a job with mostly local coworkers in three countries. The word "local" indicates...	0.07	**0.69**	0.03	0.06	0.12
IF	I have visited a school in five countries.	0.07	**0.68**	0.21	0.15	0.06
DF	I have voted in a government election in three states, provinces, or regions within one country.	0.11	0.05	**0.80**	-0.01	0.13
DF	I have taken someone else to a doctor's appointment in three states, provinces, or regions within...	0.24	0.20	**0.76**	0.04	0.11

DF	I have owned a vehicle, or a pass that carried a balance (for multiple uses) for public transport...	0.20	0.14	**0.75**	0.01	0.05
DF	I have enrolled in and attended schools in five states, provinces, or regions within one country.	0.06	0.01	**0.73**	0.05	0.13
DF	I have mailed or received a letter in five states, provinces, or regions within one country.	0.25	0.16	**0.69**	-0.01	0.01
C	I wish I could visit the physical spaces (e.g. house, apartment) I used to live in.	0.04	-0.02	-0.03	**0.67**	-0.04
C	I often think back to the food I ate in another place, wishing I could eat it now.	0.02	0.05	0.08	**0.65**	-0.03
C	I often think about how much I love the climate of another place I have spent time before.	0.07	-0.04	0.00	**0.64**	-0.08
C	I have considered going back to another place to do work that I miss doing.	0.10	0.16	-0.01	**0.61**	0.02
C	I feel excited when I hear others speak a language I have previously studied.	0.03	0.25	-0.05	**0.56**	0.05
C	Certain values of mine tie me to a community I was part of that was rooted in another place.	0.06	0.08	0.06	**0.56**	-0.03
S	Activities I enjoyed in other places are no longer accessible for me (based on location, not abil...	-0.02	0.21	0.02	0.34	**0.32**
S	It is feasible that in the next ten years I could visit most of the places I have lived before.	0.02	0.08	0.13	-0.12	**0.78**
S	I will likely use all of the [current versions of (e.g. Euro)] currencies again that I have used...	0.02	0.00	0.10	-0.01	**0.56**
S	There are particular recreational activities or hobbies I primarily did in another place that I w...	0.04	0.04	0.02	0.20	**0.53**
S	It would take a lot (e.g. time, money, planning, connections) to visit all the places I've lived...	-0.06	0.26	0.15	0.38	**0.53**
S	I will likely reconnect with most of my previous schools in the future.	-0.03	0.09	0.04	-0.15	**0.51**
S	If I went back to the places I have lived, I have connections to someone I could stay with.	0.01	0.00	0.01	-0.33	**0.50**

APPENDIX J

MEASURE OF GLOBAL MOBILITY

The following questions are about your experiences in various countries. In answering the questions, please consider experiences from your whole life, reaching back to your childhood, and even short visits you made to other places. Make sure to include the U.S. or whatever country you currently live in.

For the following questions, answer whether the statement is true for you in more, fewer, or about the same as the bold and underlined number. For example, if the statement is true of you in more than <u>five</u> countries, mark "Slightly More" or "Many More."

The word "local" indicates someone whose family is from the area indicated, and is currently living there, and has lived there at least ten years.

Response options for these items:
Much Fewer Slightly Fewer About the Same Slightly More Many More

1. I have visited a school in **<u>five</u>** countries.

2. I have used public transportation in **<u>five</u>** countries.

3. Overall I feel that I have experience in **<u>five</u>** countries.

The following questions are still about countries, but now compare your experience to <u>three</u> countries instead of <u>five</u> countries.

4. I have been responsible for plants or a pet in **<u>three</u>** countries.

5. I have worked in a job with mostly local coworkers in **<u>three</u>** countries.

6. I have had a bank account in **<u>three</u>** countries that used different currencies.

The following questions ask about states, provinces or regions within one country. Choose the country that will give you the highest number of states, provinces, or regions.

The country you choose may vary depending on the question. If your answer refers to a country that divides its land by states or provinces, then count accordingly; otherwise go by your estimate of how such things would be reasonably divided (regions of some kind) within the country of reference.

For the following questions, answer whether the statement is true for you in more, fewer, or about the same as the bold and underlined number. For example, if the statement is true of you in more than <u>five</u> states, provinces, or regions within one country, mark "Slightly More" or "Many More."

Response options for these items:
Much Fewer Slightly Fewer About the Same Slightly More Many More

7. I have mailed or received a letter in **<u>five</u>** states, provinces, or regions within one country.

8. I have enrolled in and attended schools in **<u>five</u>** states, provinces, or regions within one country. (Include all levels of education from pre-k to university, and homeschooling, and professional or certificate programs.)

The following questions are still about states, provinces, or regions within one country, but now compare your experience to <u>three</u> instead of five.

9. I have owned a vehicle, or a pass that carried a balance (for multiple uses) for public transportation, in **<u>three</u>** states, provinces, or regions within one country.

10. I have voted in a government election in **<u>three</u>** states, provinces, or regions within one country.

11. I have taken someone else to a doctor's appointment in **<u>three</u>** states, provinces, or regions within one country.

The following questions ask about cities or towns within one state, province, or region. Choose the state, province, or region that will give you the highest answer for the number of cities or towns. The state, province, or region you choose may vary depending on the question.

If your answer refers to an area that is not part of a clearly defined state or province, then use your best judgment. Likewise, if there are no clearly defined cities or towns within the region your answer refers to, then use your best judgment about how to divide the urban and rural areas within that region.

For the following questions, answer whether the statement is true for you in more, fewer, or about the same as the bold and underlined number. For example, if the statement is true of you in more than five cities or towns within one state, province, or region, mark "Slightly More" or "Many More."

Response options for these items:
Much Fewer Slightly Fewer About the Same Slightly More Many More

12. I have attended a meeting (e.g. conference, church service, class) meant to gather people like me in **five** cities or towns within one state, province, or region.

13. I have exchanged contact information with (or friended on social media) a local person in **five** cities or towns within one state, province, or region.

14. I have visited a doctor in **five** cities or towns within one state, province, or region.

15. I have enrolled in and attended schools in **five** cities or towns within one state, province, or region. (Include all levels of education from pre-k to university, and homeschooling, and professional or certificate programs.)

16. Overall I feel that I have experience in **five** cities or towns within one state, province, or region.

The following questions are still about cities or towns within one state, province, or region, but now compare your experience to three instead of five.

17. I have regularly participated in a recreational activity or hobby with a group of people in **three** cities or towns within one state, province, or region.

18. I have had a leadership role in a community or social group comprised of mostly locals in **three** cities or towns within one state, province, or region.

The following questions ask about the connection you feel in relation to your experiences of past places. Mark your level of agreement with the statement. For example, if you agree with the statement, mark "Agree" or "Strongly Agree."

If you feel your experience does not quite fit the question, give the answer that fits best. For example, if the question asks if you are happy when someone associates you with having been part of a community you have been part of in another place, and you have not ever been part of a community in another place, put "Strongly Disagree." Or if it asks about "places" (plural), and you have been in more than one, think about your average answer for all the places you have experienced.

Response options for these items:
Strongly Disagree Disagree Agree Strongly Agree

19. Certain values of mine tie me to a community I was part of that was rooted in another place.

20. I often think back to the food I ate in another place, wishing I could eat it now.

21. I wish I could visit the physical spaces (e.g. house, apartment) I used to live in.

22. I often think about how much I love the climate of another place I have spent time before.

23. I feel excited when I hear others speak a language I have previously studied.

24. I have considered going back to another place to do work that I miss doing.

The following questions ask about the access or separation you anticipate in relation to your past experiences. Mark your level of agreement with the statement. For example, if you agree with the statement, mark "Agree" or "Strongly Agree."

If you have only had one experience related to what is asked, then presumably you still have access to that experience, so answer as if you have maximum access and minimal separation. For example, if the question asks if you will revisit communities you were part of in the past, mark "Strongly Agree" because you are constantly experiencing the only community you have been part of. Watch out for questions that are worded in the reverse, because you may sometimes have to answer "Strongly Disagree" to imply access and not separation.

Response options for these items:
Strongly Disagree Disagree Agree Strongly Agree

25. Activities I enjoyed in other places are no longer accessible for me (based on location, not ability/interest).

26. If I went back to the places I have lived, I have connections to someone I could stay with.

27. It is feasible that in the next ten years I could visit most of the places I have lived before.

28. It would take a lot (e.g. time, money, planning, connections) to visit all the places I've lived before.

29. I will likely reconnect with most of my previous schools in the future.

30. I will likely use all of the [current versions of (e.g. Euro)] currencies again that I have used previously.

31. There are particular recreational activities or hobbies I primarily did in another place that I will likely never do again.

APPENDIX K

CURRENT RAW SCORE CONVERSION RUBRIC FOR ESTIMATED SCORES

The rubrics below are to be used only for score *estimates*, and cannot be considered to produce true scores. Once more data collection provides stable measures, then new rubrics will be made available that can be considered reliable. Look up the raw score and convert to the corresponding estimated score for each scale.

Familiarity items receive raw scores according to their responses:

Much Fewer	1
Slightly Fewer	2
About the Same	3
Slightly More	4
Many More	5

Connection and Separation items receive raw scores according to their responses:

Strongly Disagree	1
Disagree	2
Agree	3
Strongly Agree	4

Separation items 26, 27, 29, and 30 should be reverse-scored.

International Familiarity Scores					
Raw Score	Estimated Score	Raw Score	Estimated Score	Raw Score	Estimated Score
6	100	15	334	24	436
7	168	16	345	25	449
8	211	17	357	26	464
9	239	18	368	27	481
10	261	19	379	28	503
11	278	20	390	29	539
12	294	21	401	30	600
13	308	22	413		
14	321	23	424		

Domestic Familiarity Scores					
Raw Score	Estimated Score	Raw Score	Estimated Score	Raw Score	Estimated Score
5	100	12	322	19	419
6	170	13	336	20	435
7	215	14	351	21	451
8	245	15	364	22	471
9	268	16	378	23	496
10	288	17	391	24	535
11	306	18	405	25	600

Regional Familiarity Scores					
Raw Score	Estimated Score	Raw Score	Estimated Score	Raw Score	Estimated Score
7	100	17	334	27	427
8	166	18	344	28	438
9	208	19	353	29	449
10	235	20	362	30	461
11	256	21	371	31	475
12	273	22	380	32	492
13	288	23	389	33	513
14	301	24	398	34	545
15	313	25	407	35	600
16	324	26	417		

Connection Scores					
Raw Score	Estimated Score	Raw Score	Estimated Score	Raw Score	Estimated Score
6	100	13	314	20	444
7	162	14	331	21	467
8	203	15	349	22	496
9	232	16	367	23	538
10	255	17	385	24	600
11	276	18	403		
12	295	19	423		

Separation Scores					
Raw Score	Estimated Score	Raw Score	Estimated Score	Raw Score	Estimated Score
7	100	15	321	23	437
8	162	16	335	24	455
9	203	17	350	25	475
10	230	18	364	26	500
11	253	19	378	27	539
12	272	20	392	28	600
13	289	21	406		
14	305	22	421		

Combined Scores							
Raw	Estimated	Raw	Estimated	Raw	Estimated	Raw	Estimated
31	100	63	308	95	355	127	404
32	151	64	310	96	356	128	406
33	181	65	311	97	358	129	407
34	198	66	313	98	359	130	409
35	210	67	315	99	361	131	412
36	220	68	316	100	362	132	414
37	228	69	318	101	363	133	416
38	235	70	319	102	365	134	418
39	241	71	321	103	366	135	420
40	246	72	323	104	367	136	423
41	250	73	324	105	369	137	425
42	255	74	326	106	370	138	428
43	259	75	327	107	372	139	431
44	262	76	329	108	373	140	434
45	266	77	330	109	375	141	437
46	269	78	331	110	376	142	440
47	272	79	333	111	377	143	444
48	275	80	334	112	379	144	448
49	278	81	336	113	380	145	452
50	280	82	337	114	382	146	456
51	283	83	339	115	383	147	461
52	285	84	340	116	385	148	467
53	288	85	341	117	387	149	474
54	290	86	343	118	388	150	481
55	292	87	344	119	390	151	491
56	294	88	346	120	391	152	503
57	296	89	347	121	393	153	520
58	298	90	348	122	395	154	549
59	300	91	350	123	396	155	600
60	302	92	351	124	398		
61	304	93	352	125	400		
62	306	94	354	126	402		